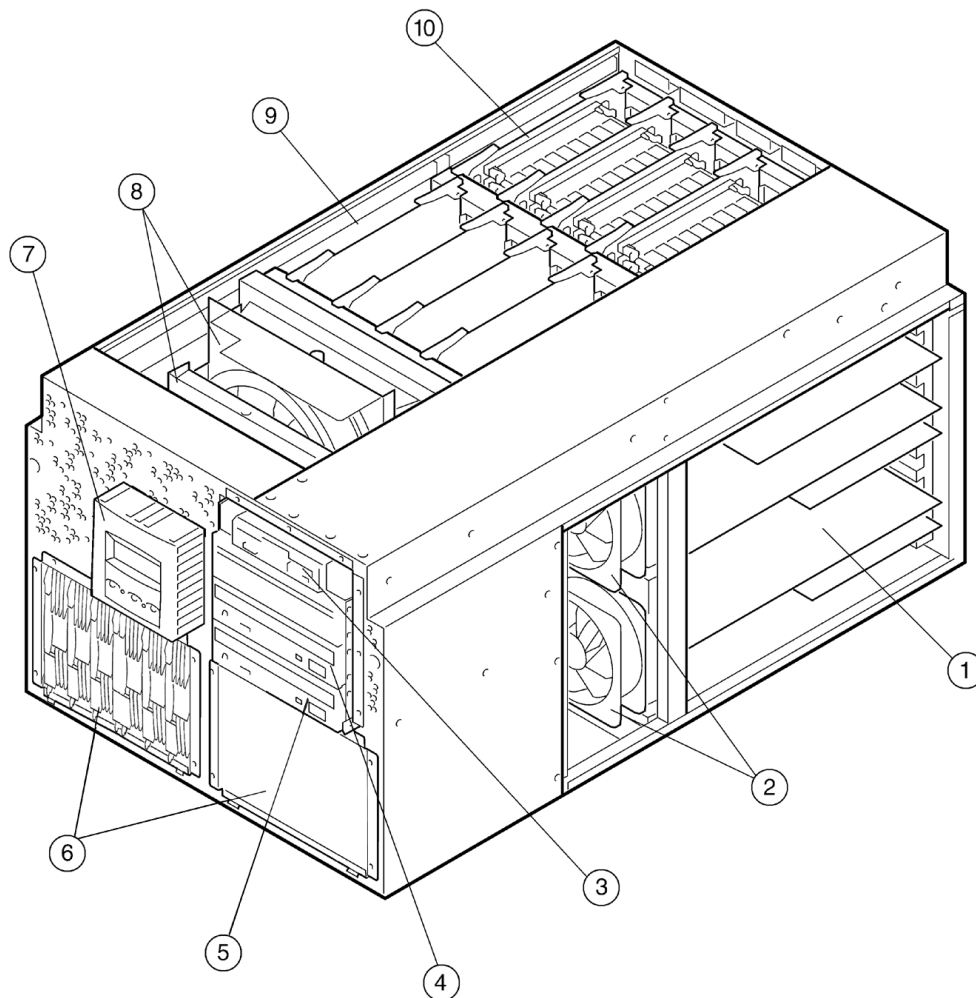


Overview



1. PCI Cards

2. Fans

3. Diskette drive

4. Removable media bays

5. CD-ROM drive

6. 6-Bay disk drive storage cages

7. Control Panel

8. Fans

9. CPUs

10. Memory

Overview

At A Glance

AlphaServer/AlphaStation ES40 Systems include:

- Alpha 21264 68/833-MHz CPU with 8-MB L2 Dual Data Rate Cache
- 6-10 64-bit PCI I/O expansion slots
- 512-MB, 1-GB, 2-GB, or 4-GB memory options (AlphaServers)
- 512-MB memory option (AlphaStations)
- 1.44-MB diskette drive
- 600-MB 48X IDE CD-ROM drive
- Two 9-pin serial ports
- One 25-pin parallel port
- RMC dedicated serial port, 6-pin MMJ connector
- Dual USB ports
- Keyboard and mouse port
- Knockouts for two 68-pin SCSI connections
- Auto-sensing power supply
- Integral remote system management console
- Customer documentation
- Tru64 UNIX or OpenVMS Factory Installed Software
- 90-day software warranty
- Protected by HP Services, including three-year hardware warranty, on-site with 5 x 9 next business day response

Standard Features

Processor	Alpha 21264 68/833-MHz CPU	
Cache Memory	8-MB L2 Dual Data Rate Backup Cache (68/833-MHz CPU)	
Upgradability	Supports additional processors and upgrades of memory and hard drives	
Memory	Minimum	512 MB – AlphaServer ES40 Model 1 512 MB – AlphaStation ES40 1 GB – AlphaServer ES40 Model 2
	Maximum	16 GB (16 DIMM slots) Model 1; 32 GB (32 DIMM slots) Model 2 (see Step 3)
Network Controller	Choice of Ethernet controllers	
Expansion	PCI I/O slots	6 slots Model 1; 10 slots Model 2
Storage	Diskette Drive	1.44-MB diskette drive in dedicated slot
	CD-ROM	600-MB 48X IDE CD-ROM
	Hard Drives	Choice of 18.2-GB, 36.4-GB, 72.8-GB, or 146-GB drives
Interfaces	Parallel	1 25-pin parallel port
	Serial	2 9-pin serial ports
	USB	Dual USB ports
	Keyboard	1 port
	Mouse	1 port
	Remote systems management	1 dedicated remote systems management port
	SCSI connections	Two 68-pin SCSI connections knockouts
Graphics	Optional	
Form Factor	Tower, Pedestal, Rackmount (M-Series Cabinet)	
Power Supply	Auto-sensing power supply, hot swappable, N+1 (see Step 4)	
Manageability	Insight Manager	

Standard Features

OS Support

AlphaServer ES40 Tru64 UNIX systems include pre-installed software, Base license, Unlimited User license, Server Extension license, Internet Express, and Secure Web Server

AlphaStation ES40 Tru64 UNIX systems include pre-installed software, 2-user Base license and Open3D traditional license

AlphaServer ES40 OpenVMS systems include pre-installed software, Base license with System Manager license and Enterprise Integration Server License Package for OpenVMS V3.1

AlphaStation ES40 OpenVMS systems include pre-installed software, Base license, Concurrent Use 1-user license, NAS 150 Client license, MMS RT license, and Open3D traditional license

Minimum OS support - Tru64 UNIX V4.0F, OpenVMS V7.2-2, Linux RedHat V6.2, Linux SuSE V6.3 or greater

Service and Support

Protected by HP Services including a three-year on-site hardware warranty with next business day response. Software warranty is a 90-day telephone advisory. Training, consulting, network integration, software support, comprehensive system maintenance and guaranteed uptime services are also available for customers requiring higher levels of service and support.

Systems

Step 1 — Select system

AlphaServer ES40 systems require the **mandatory** selection of the following items:

- Disk drive cage or StorageWorks shelf (Step 5)
- System disk drive (Step 5)
- System enclosures: Tower, Pedestal, or Rack Kit (Step 6)
- Ethernet adapter (Step 8)
- Storage adapter (Step 10)
- Software media and documentation for first system onsite

NOTES: ES40 Model 1 to Model 2 Upgrade Kit available - see Step 16.

Only 2-5-2 part numbers are factory integrated.

AlphaServer ES40 Systems					
ES40	OS	CPU	PCI I/O Slots	Memory/Cache	Order Number
Model 1	Tru64 UNIX	833 MHz	6	512 MB/8 MB	DA-62CAA-CA
Model 1	Tru64 UNIX	833 MHz	6	1 GB/8 MB	DA-62CAA-DA
Model 1	Tru64 UNIX	833 MHz	6	2 GB/8 MB	DA-62CAA-EA
Model 2	Tru64 UNIX	833 MHz	10	512 MB/8 MB	DA-64CAA-CA
Model 2	Tru64 UNIX	833 MHz	10	1 GB/8 MB	DA-64CAA-DA
Model 2	Tru64 UNIX	833 MHz	10	2 GB/8 MB	DA-64CAA-EA
Model 2	Tru64 UNIX	833 MHz	10	4 GB/8 MB	DA-64CAA-FA
Model 1	OpenVMS	833 MHz	6	512 MB/8 MB	DY-62CAA-CA
Model 1	OpenVMS	833 MHz	6	1 GB/8 MB	DY-62CAA-DA
Model 1	OpenVMS	833 MHz	6	2 GB/8 MB	DY-62CAA-EA
Model 2	OpenVMS	833 MHz	10	512 MB/8 MB	DY-64CAA-CA
Model 2	OpenVMS	833 MHz	10	1 GB/8 MB	DY-64CAA-DA
Model 2	OpenVMS	833 MHz	10	2 GB/8 MB	DY-64CAA-EA
Model 2	OpenVMS	833 MHz	10	4 GB/8 MB	DY-64CAA-FA
AlphaStation ES40 Systems					
Model 2	Tru64 UNIX	833 MHz	10	512 MB/8 MB	DA-64CAA-CW
Model 2	OpenVMS	833 MHz	10	512 MB/8 MB	DY-64CAA-CW

Systems

Step 2 - Additional CPU Modules - Optional

● One CPU included, three additional CPUs are supported	
SMP upgrade, includes one 67/667-MHz CPU with 8-MB cache and Tru64 UNIX SMP license	KN610-BB
SMP upgrade, includes one 67/667-MHz CPU with 8-MB cache and OpenVMS SMP license	KN610-BC
SMP upgrade, includes one 68/833-MHz CPU with 8-MB cache and Tru64 UNIX SMP license	KN610-CB
SMP upgrade, includes one 68/833-MHz CPU with 8-MB cache and OpenVMS SMP license	KN610-CC
From: EV67 667-MHz CPU	To: EV68 833-MHz CPU
	Upgrade console firmware to V5.9-24 as minimum revision
	Upgrade system hardware with EV68 CPUs
	Ensure all system firmware matches console version V5.9-24
EV6 500-MHz CPU	EV68 833-MHz CPU
	Upgrade console firmware to V5.9-24 as minimum revision
	Upgrade system hardware with EV68 CPUs
	Re-install V5.9-24 console firmware
	Ensure all system firmware matches console version V5.9-24

Step 3 - Memory - Optional

- Systems include one memory option
- Model 1 systems supports four memory options (total of 16 DIMMs)
- Model 2 systems support eight memory options (total of 32 DIMMs - see Note below)
- Memory performance considerations: Interleaved operations reduce the average latency and increase the memory throughput over non-interleaved operations. With one memory option (4 DIMMs) installed, memory interleaving will not occur. With two identical memory options (8 DIMMs) installed, memory read-write operations are two-way interleaved. With four identical memory options (16 DIMMs) installed, memory read-write operations are four-way interleaved, maximizing memory throughput.

Systems

512-MB memory option (4 x 128-MB DIMMs)	MS610-CA
1-GB memory option (4 x 256-MB DIMMs)	MS610-DA
2-GB memory option (4 x 512-MB DIMMs)	MS610-EA
4-GB memory option (4 x 1024-MB DIMMs)	MS610-FA

NOTE: ES40 configurations that require maximum N+1 power (three power supplies) are restricted to a maximum of 24-GB of mixed memory (sixteen 1-GB DIMMs and sixteen 512-MB DIMMs). If N+1 maximum power is not required, 32-GB of memory is supported.

NOTE:

Linux configurations with large memory require the installation of a patch.

The patch to support greater than 2 GB of memory per system is located at:

<http://www.kernel.org/pub/linux/kernel/people/andrea/patches/v2.2/2.2.17> (patch name: bigmem-2.2.18pre2-18.bz2)

The following minimum operating system versions require the patch:

- Linux RedHat V6.2
- Linux SuSE V6.3 (Kernel V2.2.17)

The following operating system minimum versions support greater than 2 GB of memory:

- Linux RedHat V7.0 (installs Kernel V2.2.17)
- Linux SuSE V7.0 (installs Kernel V2.2.16)

When installing Linux SuSE V7.0 on a system with more than 2 GB of memory, user will be prompted for a (ramdisk) floppy. To create a floppy:

- Mount the SuSE V7.0 installation CD-ROM #1 on the system.
- Mount a blank formatted floppy (if not formatted, execute the following command: `fdformat/dev/fd0H1440`).
- Change directory, to the "disks" directory on the install CD-ROM.
- Execute the following command to create the floppy contents:
`dd if=install of=/dev/fd0.`

Use this floppy when prompted by the install procedure for a floppy.

Options

Step 4 - Additional Power Supplies - Required for third and fourth CPUs and/or second Disk Drive Cage

- One power supply supports two CPUs, up to 12 memory DIMMs, and one disk card cage; order second power supply if N+1 power is required.
- Two power supplies support third and fourth CPU, 13 to 32 memory DIMMs (up to 24-GB of memory), and/or two disk card cages; order third power supply if N+1 power is required for third and fourth CPUs, 24-GB of memory, and/or two disk card cages.
- Three power supplies support 32 GB of memory without N+1 power.
- Three power supplies support a maximum of 24 GB of memory with full N+1 power.
- Each additional power supply ordered with a tower system requires an additional country-specific power cord.
- Pedestal system and Rack kit include three internal power cords regardless of the number of power supplies ordered; Pedestal systems support 120 V and 240 V power cords.

ES40 720W power supply

H7906-A9

Step 5 - Disk Drive Cage or StorageWorks Shelf - Mandatory

- Tower enclosure supports one system and two disk drive cages
- Pedestal enclosure supports one system and two disk drive cages, two Universal 42xx/43xx StorageWorks shelves or three BA36R StorageWorks shelves
- M-Series cabinets support five systems each with two disk drive cages and up to six StorageWorks shelves

Step 5a - Disk Drive Cage - Requires selection of system disk drive

Disk Drive Cages	6-bay disk drive cage with cable for use with 1-inch Universal drives – requires mandatory selection of UltraSCSI adapter and SCSI cable (Step 10) per disk drive cage	BA610-6D
	6-bay disk drive cage with embedded Ultra2 LVD adapter; supports internal SCSI 1-inch Universal drives or tapes only	BA610-6E
OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V4.0F requires Patch Kit 2 (BL13): - DUV40FAS0002-19991116.tar		
NOTE: See AlphaServer ES40 Configuration Chart for Storage Adapters in Step 10.		
System Disk Drives (Supported in Disk Drive Cage and Universal StorageWorks Shelves)	18.2-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3848-AA
	36.4-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3838-AA
	36.4-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3849-AA
	72.8-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3839-AA
	72.8-GB Ultra320 SCSI 15,000 rpm 1-inch Universal disk drive	3R-A3851-AA
	146-GB Ultra320 SCSI 10,000 rpm 1-inch Universal disk drive	3R-A3841-AA

Options

Step 5b - StorageWorks Model 4314R and Model 4354R Universal Drive Shelves

<ul style="list-style-type: none">StorageWorks Model 4314R and 4354R Ultra2 SCSI (LVD) single-bus and split-bus Universal drive shelves; refer to StorageWorks Enclosure 4300 Family QuickSpecs when configuring shelves. When selecting a DS-SL13R-xx split-bus shelf, order two UltraSCSI adapters. Model 43xx shelves are compatible with Wide Ultra2 (LVD) adapters only.BN38C-05 cable is required per channel if the connection is not VHDCI/VHDCI. DS-SL13R shelves include one 12-foot VHDCI/VHDCI SCSI cable.Note that the depth of a DS-SL13R-xx shelf does not allow front and rear mounting.		
StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, U.S. (190209-0011)		DS-SL13R-AA
StorageWorks Model 4314R Ultra3 SCSI (LVD) single-bus Universal drive rackmount shelf, includes one power supply, Japan (190209-291)		DS-SL13R-AJ
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, U.S. (190211-0011)		DS-SL13R-BA
StorageWorks Model 4354R Ultra3 SCSI (LVD) split-bus Universal drive rackmount shelf, includes two redundant power supplies, Japan (190211-291)		DS-SL13R-BJ
To add additional power supply for single-bus Universal shelf, U.S. (338296-B21)		DS-SE2UP-BA
To add additional power supply for single-bus Universal shelf, International (338296-B22)		DS-SE2UP-BI
StorageWorks Model 4314T Standalone Enclosure for Universal Drives	Model 4314T Ultra3 SCSI, single-bus tower enclosure, U.S. (190210-001)	DS-SL13T-AA
	Model 4314T Ultra3 SCSI, single-bus tower enclosure, International (190210-B31)	DS-SL13T-AB
	Model 4314T Ultra3 SCSI, single-bus tower enclosure, Japan (190210-291)	DS-SL13T-AJ

Step 6 - System Enclosures - Mandatory selection of Tower, Pedestal, or Rack Kit

Step 6a - Tower Enclosure

<ul style="list-style-type: none">Tower enclosure supports one systemTower enclosure ordered in North America includes 120V power cord; country-specific power cord mandatory for all non-North American systems; additional power cord mandatory for each power supply ordered with a system installed in a tower enclosure		
Tower Enclosure		BA61M-MT

Step 6b - Pedestal Enclosure

<ul style="list-style-type: none">Pedestal enclosure supports one system, two Universal 43xx StorageWorks shelves or three UltraSCSI BA36R StorageWorks shelvesPedestal enclosures (BA61P-PA, 120V/BA61P-PB, 240V) support Universal shelves120V pedestal enclosure includes two external 120V power cords; 240V pedestal enclosure requires two country-specific power cordsPedestal enclosure includes two factory-configured power strips that provide five available outlets; if the number of BA356-RC/RD power supplies requires a sixth outlet, this can be accommodated only if the system chassis is limited to two H7906-A9 power supplies		
120V Pedestal Enclosure, includes two external power cords		BA61P-PA
240V Pedestal Enclosure, requires two country-specific power cords		BA61P-PB

Options

Step 6c - Rack Kit for M-Series Cabinet

- Rack Kit required for each AlphaServer ES40 system installed in a new or existing M-Series Cabinet
- Rack Kit supports one system

Rack kit for AlphaServer ES40, includes dress bezel, slides, three internal power cords, all bracketry and hardware for mounting in M-Series cabinets

BA61R-RM

NOTE: Factory integration of an ES40 system drawer in a 9000 rackmount cabinet using rack kit, 3X-BA61R-RC, is not supported. Contact Custom Systems or Certified Integration Partner.

Step 7 - M-Series Cabinets

M-Series cabinet enclosures support up to four systems, up to six StorageWorks shelves, and/or two BA370 enclosures; M-Series Enclosures require selection of the following items:

- H9A10 or H9A15 cabinet, 120V or 240V
- Rack kit for each system
- H9A10 or H9A15 rear cabinet extender
- Cabinet front door based on cabinet height
- Factory integration
- Ballast kit if only one system is ordered for the H9A15 cabinet

NOTE: For configurations beyond those listed in the following charts, contact CustomSystems.

Cabinet Configuration Chart for AlphaServer ES40 (8U) with StorageWorks Shelves (4U)								
Cabinet	Rack Kit	Cabinet Extender	Cabinet Height/Space	Systems	BA356 Shelves	DS-SL13R 120V Shelves(2)	BA356/ DS-SL13R(3)	
							BA356	DS-SL13R
H9A10-MC/MD(1)	BA61R-RM	H9C10-TE	67-inches/34U	1	6	8	6	4
				2	6	5	6	1
				3	2	2	4	0
				4(1)	0	0	0	0
H9A15-MC/MD(4)	BA61R-RM	BA61R-RM	79-inches/41U	1	6	8	6	5
				2	6	5	6	2
				3	6	2	6	0
				4	2	0	2	0
				5(5)	0	0	0	0

NOTES:

1. Contact CustomSystems for cabinet configurations with four AlphaServer ES40 systems installed in H9C10-MC/MD cabinet.
2. Japan only – 240V cabinet required when using Universal shelves
3. When using a combination of BA356 and DS-SL13R shelves in the same cabinet, do not remove the top fan (only remove fan when using DS-SL13R shelves exclusively)
4. Installation of one AlphaServer ES40 system in an H9A15 cabinet requires the mandatory selection of a ballast kit.
5. When adding the 5th system drawer, replace H7600-AA or -DB power controller with H7602-EA or -DB power controller. When replacing H7600 controllers, replace all associated power cords; order BN35S-4E power cords for H7602-EA and H7602-DB power controllers.

Options

M-Series Cabinets	<ul style="list-style-type: none"> Required selection of one cabinet Two H7600-xx power distribution units are standard in the M-Series cabinet For cabinet configurations that require a third power distribution unit (H7600-xx), contact CustomSystems at 1-800-282-6672. 	
	67-inch cabinet with 59.5-inch or 34U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray	H9A10-MC
	67-inch cabinet with 59.5-inch or 34U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray	H9A10-MD
	79-inch cabinet with 71.7-inch or 41U of usable vertical space, 120V dual-24A controller, each with 10 NEMA 5-15R outlets, input power plug NEMA L5-30P, Americas, Asia Pacific; includes rear door and top fan tray	H9A15-MC
	79-inch cabinet with 71.7-inch or 41U of usable vertical space, 240V dual-16A controller, each with 12 IEC C13 outlets, input power plug IEC 309, 16A, Europe; includes rear door and top fan tray	H9A15-MD
Rear Cabinet Extender	<ul style="list-style-type: none"> Required selection of one cabinet extender for each H9A10 or H9A15 cabinet 	
	Rear cabinet extender, top gun blue, for H9A10-MC/MD cabinets	H9C10-TE
	Rear cabinet extender, top gun blue, for H9A15-MC/MD cabinets	H9C15-TE
Cabinet Front Door	<ul style="list-style-type: none"> Required selection of door based on cabinet height 	
	Front door, top gun blue, for H9A10-MC/MD cabinet enclosure	H9C10-TF
	Front door, top gun blue, for H9A15-MC/MD cabinet enclosure	H9C15-TF
Factory Integration	<ul style="list-style-type: none"> Required 	
	Factory Integration of systems and storage devices assembled and configured in cabinet enclosure in predefined locations	YS-ASCAA-AA
Ballast Kit	<ul style="list-style-type: none"> Required only if one system is ordered for the H9A15 cabinet Ballast is added to a cabinet at particular locations for specific configurations to meet safety regulations for installation, operation, and service; see Cabinet Configuration Charts. 	
	Two 35 to 40 lb steel plates	H9C10-MC

Options

Step 8 - Networking Adapters/Controllers

Step 8a - Networking Adapters/Controllers - Mandatory

- Select mandatory Ethernet adapter
- Adapters require a minimum of Tru64 UNIX V4.0F or OpenVMS V7.2-2
- Each adapter uses one PCI slot

NOTE: Ethernet adapter is not required if 3X-DEPVZ-AA or KZPCM is selected as SCSI adapter for StorageWorks shelf.

Options

		Maximum # Supported			
		Tru64 UNIX	Open VMS	Linux	
Ethernet 10/100/1000	PCI (32-/64-bit, 33-/66-MHz) dual-port 10/100 Ethernet (UTP/RJ45s) NIC and Base Module. (One 3X-DE602-TA or 3X-DE602-FA optional add-on daughter card can be combined with this module.) Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	4	4	-	3X-DE602-BB
	PCI single-port 1000 Mbps (MMF with duplex-SC) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: - T64V51BB22AS0002-20030415.tar Requires Early Release Patch to update driver to V1.0.21: T64V51BB22-C0019200-19212-E-20030710.tar http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-0003000-16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires Early Release Patch: - T64V51AB21-C0127901-19213-E-20030710.tar OpenVMS V7.301 support as a standalone network interface and as a cluster interconnect requires that users download and install the following two ECO Kits: DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI NOTE: Use BN34A, BN34B, or equivalent cables with SC connectors.	4 per bus	4 per bus	-	3X-DEGXA-SA
	PCI single-port 10/100/1000 Mbps (Twisted-Pair Copper with RJ45) Gigabit Ethernet; Tru64 UNIX V5.1B/TruCluster V5.1B supports up to eight nodes and requires: - T64V51BB22AS0002-20030415.tar Requires Early Release Patch to update driver to V1.0.21: T64V51BB22-C0019200-19212-E-20030710.tar http://ftp1.support.compaq.com/public/unix/v5.1b/t64v51bb1-0003000-16672-e-20030130.README Tru64 UNIX V5.1A/TruCluster V5.1A supports up to eight nodes and requires Early Release Patch: - T64V51AB21-C0127901-19213-E-20030710.tar OpenVMS V7.301 support as a standalone network interface and as a cluster interconnect requires that users download and install the following two ECO Kits: DEC-AXPVMS-VMS731_PCSI_V0100-4.PCSI DEC-AXPVMS-VMS731_LAN_V0600-4.PCSI NOTE: Use BN34A, BN34B, or equivalent cables with SC connectors	4 per bus	4 per bus	-	3X-DEGXA-TA
Multi-function Module 10/100	PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter NOTE: No support for multi-head graphics. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V5.1 requires Patch Kit 3: - T64V51AS0003-20010413.tar Tru64 UNIX V4.0F with NHD2 - TruCluster V5.1 support restricted to non-shared buses Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	1	1 Requires Slot 0	-	3X-DEPVZ-AA
	3X-DEPVZ-AA specific-use 3-meter LVD2 SCSI cable				BN37A-03

Options

Step 8b – Networking Adapters/Controllers - Optional

		Maximum # Supported			
		Tru64 UNIX	Open VMS	Linux	
Ethernet 10/100	PCI (32-/64-bit, 33-/66-MHz) single-port 1000 Mbps (MMF/SC) NIC; no on-board Boot-ROM support. Use BN34A or BN34B cables.	4	4	-	DEGPA-SA
	PCI (32-/64-bit, 33-/66-MHz) single-port 10/100/1000 (UTP/RJ45) Gigabit NIC, copper; no on-board Boot-ROM support. NOTE: Requires minimum version of Tru64 UNIX V5.0A, Patch kit 2: - T64V50AAS0002-20001004.tar Requires minimum version of OpenVMS V7.2-2; OpenVMS V7.3 requires Patch kit:- DEC-AXPVMS-VMS73_LAN-V0100-4.PCSI Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	4	4	4	DEGPA-TA
	Dual-port 10/100 Ethernet (UTP/RJ45) add-on daughter card for use with the 3X-DE602-BB only. The combined 3X-DE602-BB and 3X-DE602-TA modules provide four 10/100 (UTP/RJ45s) ports in a single PCI slot option; allows for a maximum of 16 ports per system. NOTE: The 3X-DE602-TA cannot be used as standalone. OpenVMS V7.3 requires Tima Kit: - DEC-AXPVMS-VMS73_LAN-V0100—4.PCSI OpenVMS V7.2-2H1 requires OpenVMS Tima Kit located at: http://ftp.support.compaq.com/patches/.new/openvms.shtml Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	4	4	-	3X-DE602-TA
FDDI	Single-port 100Mbps (MMF/duplex-SC) add-on daughter card for use with 3X-DE602-BB. The combined 3X-DE602-BB 3X-DE602-FA provides two 10/100 (UTP/RJ45s) and one 100Mbps (MMF/SC) ports in a single PCI slot option. NOTE: The 3X-DE602-TA cannot be used as standalone. Use BN34A or BN34B cables.	4 per system 1 per adapter	1 per adapter	-	3X-DE602-FA
	PCI (32-bit, 33-MHz) to FDDI SAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables.	4	4	-	3X-DEFPA-AC
	PCI (32-bit, 33-MHz) to FDDI DAS (MMF/duplex-SC) NIC. Use BN34A, BN34B, or BN34D cables.	4	4	-	3X-DEFPA-DC
	PCI (32-bit, 33-MHz) to FDDI DAS (UTP/RJ45s) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	4	4	-	3X-DEFPA-MC
	PCI (32-bit, 33-MHz) to FDDI SAS (UTP/RJ45) NIC. Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	4	4	-	3X-DEFPA-UC
	FDDI - specific cable - Multimode fiber optic (MMF) 62.5/125um duplex cable with SC-to-MIC connectors. -xx = available lengths: (01, 03, 10) for 1, 3, 10 meters				BN34D-xx
ATM	PCI (32-bit, 33-MHz) to 155 Mbps ATM, copper NIC with RJ45 connector. Use BN25G-xx, or BN26M-xx cables.	6	6	-	3X-DAPBA-UA
	PCI (32-bit, 33-MHz) to 155 Mbps ATM fiber NIC with SC connector. Use BN34B-xx cable.	6	6	-	3X-DAPBA-FA

Options

Synchronous Communications (SYNC)	PCI (32-bit, 33-MHz) to dual-port intelligent synchronous communications NIC. Requires at least one (maximum two) 3X-BC34x synchronous cable listed below.	4	4	-	3X-PBXDD-AA
	PCI (32-bit, 33-MHz) to quad-port intelligent synchronous communications NIC. Requires at least one (max four) 3X-BCN34x synchronous cable listed below.	4	4	-	3X-PBXDD-AB
	Synchronous-Specific Cables				
	EIA-530 single-port cable				3X-BC34G-06
	V.24/EIA-232 single-port cable				3X-BC34L-06
	V.11/x.21 single-port cable				3X-BC34S-06
	V.35 single-port cable				3X-BC34T-06
Asynchronous Communications (ASYNC)	PCI (32-bit, 33-MHz) to quad-port Async Communications NIC with DB-25 octopus cable	4	4	-	PBXDA-BA
	PCI (32-bit, 33-MHz) to 8-port Async Communications NIC with DB-25 octopus cables	4	4	-	PBXDA-BB
	PCI (32-bit, 33-MHz) to 16-port Async Communications Controller and tabletop 16-port distribution box with RJ45 connectors	2	2	-	PBXDA-AC
	PBXDA-AC Asynchronous Connector Adapters				
	RJ45 to DB-25 converter cable				CXI01-AC
	RJ45 to DEC MJ11 converter cable (8 pack)				CXI01-AF

Step 8c— Multi-use Cables

		Maximum # Supported			
		Tru64 UNIX	Open VMS	Linux	
Ethernet, FDDI, ATM	Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-ST connectors. -xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20, 30 meters				BN34A-xx
	Multimode fiber optic (MMF) 62.5/125um duplex cable, with SC-to-SC connectors. -xx = available lengths: (2E, 4E, 01, 03, 10, 20, 30) for 2.4, 4.5, 1, 3, 10, 20, 30 meters				BN34B-xx
	Category 5e (4-Unshielded Twisted Pairs / UTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0B, 0E, 01, 03, 04, 07) for 0.2, 0.5, 1, 3, 4, 7 meters				BN25G-xx
	Category 5e (4-Twisted Pairs, Screened/ ScTP) straight-through cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters				BN26M-xx
	Category 5e (4-Unshielded Twisted Pairs / UTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters				BN24Q-xx
	Category 5e (4-Twisted Pairs, Screened / ScTP) Xover cable with RJ45-to-RJ45 connectors for system to switch, repeater, or hub connectivity. -xx = available lengths: (0E, 01, 03, 04, 07) for 0.5, 1, 3, 4, 7 meters				BN28Q-xx

Options

Step 9 - MEMORY CHANNEL - Optional

NOTE: When using MEMORY CHANNEL, refer to the TruCluster QuickSpecs for configuration guidelines and restrictions:

<http://www.compaq.com/products/quickspecs/Division/10657.html>

The MEMORY CHANNEL controller, CCMAB-AA, must be revision C1 or later.

Tru64 UNIX Systems (V5.0A and later)

- Each system node in the cluster requires a TruCluster software license (QL-6BRAE-AA)

Tru64 UNIX Systems (V4.0F)

- Requires a minimum of Tru64 UNIX V4.0F with TruCluster V1.6 or later
- Each system node in the cluster requires a TruCluster Production Server (QB-3RLAE-AA) or TruCluster MEMORY CHANNEL software license (QB-4ZCAE-AA)
- TruCluster MEMORY CHANNEL license (QB-4ZCAG-AA), normally used for high performance technical computing applications, not required if systems include a TruCluster Production Server license (QB-3RLAE-AA)

OpenVMS Systems

- OpenVMS V7.2-2 or later and OpenVMS Cluster license (QL-MUZAE-AA) are required

Configuring Information

- Up to two PCI-to-System Area Network adapters (CCMAB-AA) are supported in a single system.
- Two-node clusters can be configured by ordering a CCMAB-AA for each node and one BN39B-04 or BN39B-10 cable; cable connects directly to CCMAB-AA in each node
- For a two-node cluster that will not be rebooted when adding additional members, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node and one CCMHB-AA hub for the cluster
- Two-node clusters can also be configured by ordering two CCMAB-AA adapters for each node and two BN39B-04 or BN39B-10 cables; cables connect directly to CCMAB-AA in each node.
- For three or four node clusters, order one CCMAB-AA adapter and one BN39B-04 or BN39B-10 cable for each node, and one CCMHB-AA hub for the cluster. If two CCMAB-AAs are configured in each system, a second CCMHB-AA is required.
- CCMHB-AA includes four CCMLB-AA line cards and supports up to four nodes; expansion up to eight system nodes can be achieved by adding up to four CCMLB-AA line cards.
- If nodes must be separated by a distance longer than standard copper cables allow the CCMFB option converts the output of the standard CCMAB controller or CCMLB line card to single-mode fiber optic cable. The fiber optic connection may be up to 2,000 meters long between two CCMAB controllers connected in virtual hub mode, or 3,000 meters between a CCMAB controller and a CCMHB hub. (The connection from the CCMHB hub to a second system may also be 3,000 meters.) The CCMFB option requires a second PCI slot in the system from which it draws power only. It is normally connected to the corresponding CCMAB controller with the short BN39B-01 cable. The CCMFB is also used in the CCMHB hub where it occupies a slot normally used by the CCMLB line card, limiting expansion to four radial fiber optic connections.
- CCMHB-BA hub expansion box provides additional slots for up to eight fiber optic connections. Two standard length single-mode fiber optic cables are available (BN34R-10 and BN34R-31); however, users normally provide this fiber optic connection. Fiber optic connectivity is completely transparent to the systems using it and has no performance impact.

Options

MEMORY CHANNEL Controller/System Area Network Hub	PCI-to-System Area Network Controller, maximum two	CCMAB-AA
	System Area Network Hub with four line cards; includes BN19P-2E power cord for Canada, Japan, and U.S. - for other regions, order appropriate power cord from the following list:	CCMHB-AA
	Hub expansion box with no line cards	CCMHB-BA
	Expansion line card for CCMHB hub	CCMLB-AA
	1-meter cable for CCMAB and CCMHB	BN39B-01
	4-meter cable for CCMAB and CCMHB	BN39B-04
	10-meter cable for CCMAB and CCMHB	BN39B-10
	Copper-to-single mode fiber optic converter	CCMFB-AA
	Rackmount kit (3U) for CCMHB (MEMORY CHANNEL Hub II); required for mounting in H9A1x cabinets.	3X-BA61R-MC
	Power cord for rackmount CCMHB hub	BN35S-02
MEMORY CHANNEL Power Cords	Australia, New Zealand (103541-011)	BN19H-2E
	Central Europe	BN19C-2E
	Denmark (103541-481)	BN19K-2E
	Egypt, India (103541-AR1)	BN19S-2E
	Ireland, United Kingdom	BN19A-2E
	Israel	BN18L-2E
	Italy (103541-461)	BN19M-2E
	Japan, 2.5-meter, Dentori approved	3X-BN46F-02
	Switzerland (103541-511)	BN19E-2E

Options

Step 10 - Storage Adapters/Controllers

NOTE: Refer to the following chart when configuring adapters, shelves, and disks.

AlphaServer ES40 Configuration Chart for Storage Adapters

Storage Adapters	Shelf	Disk Drives	Tru64 UNIX	OpenVMS	Linux
3X-KZPCA-AA	BA610-6D DS-SSL14-Rx DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V4.0F or higher	V7.2-2 or higher	RedHat V6.2 SuSE V6.3 (Requires BA610)
3X-KZPEA-DB	BA610-6D DS-SSL14-Rx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1A only	V7.2-2 or higher	-
DS-KGPSA-EA	See external storage options	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1A	V7.3-1	-
DS-KGPSA-DA	See external storage options	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1	V7.2-2 or higher	-
3X-DEPVZ-AA	DS-SL13R-xx	3R-A1xxx-AA 1-inch Universal	V4.0F with NHD2 or higher	V7.2-2 or higher	-
KZPCM-DA	BA36R-xx (Installed base only)	DS-RZ1ED-VW DS-RZ1FC-VW (Installed base only)	V4.0F or higher	V7.2-2 or higher	-
3X-KZPBA-CC	BA36R-xx (Installed base only)	DS-RZ1ED-VW DS-RZ1FC-VW (Installed base only)	V4.0F or higher	V7.2-2 or higher	RedHat V6.2 SuSE V6.3
DS-SWLA4-PD	BA36R-xx (Installed base only)	DS-RZ1ED-VW DS-RZ1FC-VW (Installed base only)	-	-	RedHat V6.2 SuSE V6.3

NOTE: Ethernet adapter is not required if 3X-DEPVZ-AA or KZPCM-DA is selected as SCSI adapter for StorageWorks shelf.

External RAID Controllers

Controllers	Shelf	Disk Drives	Tru64 UNIX	OpenVMS	Linux
3X-KZPDC-BE/DF	DS-SL13R-xx	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1B/V5.1A EV68 only	V7.3-1	-
DS-KZPCC-AC/CE	BA36R-xx* (Installed base only)	DS-RZ1ED-VW DS-RZ1FC-VW (Installed base only)	V4.0F or higher	Not supported	-
KZPAC-AA/CA/CB	BA36R-xx* (Installed base only)	DS-RZ1DD-VW (Installed base only)	V4.0F or higher	V7.2-2 or higher	-
DS-SWLA4-PD	BA36R-xx* (Installed base only)	DS-RZ1ED-VW DS-RZ1FC-VW (Installed base only)	-	-	RedHat V6.2 SuSE V6.3

NOTE: * = BA36R-xx shelves require DOC2 I/O module, DS-BA35X-FC; order DS-BA35X-FC as an independent option (will not be factory installed).

Internal RAID Controllers

Controllers	Shelf	Disk Drives	Tru64 UNIX	OpenVMS
3X-KZPDC-BE/DF	BA610-6D	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	V5.1B/V5.1A EV68 only	V7.3-1
DS-KZPCC-AC/CE (see NOTES)	BA610-6D (3)	3R-A0xxx-AA 1-inch Universal 3R-A1xxx-AA 1-inch Universal 3R-A3xxx-AA 1-inch Universal	EV6 V4.0F EV67 V5.1 (2) EV68 (1)	Not supported

Options

NOTES:

- DS-KZPCC-AC/CE RAID controllers can be used with Universal shelves and drives in ES40 Pedestal and Rackmount configurations. Configuration rules are restricted to specific CPU speeds and OS versions:
 - Tru64 UNIX V4.0F requires NHD3 and Patch Kit 4 (BL15) or later (for EV6, EV67, EV68 systems)
 - Tru64 UNIX V5.1 requires Patch Kit 3 (BL17) and Early Release Patch C462.02 (for EV68 and specific EV67 systems)
 - EV67 systems (54-30362-01) on V5.1 must be at Revision C01 or Revision D01
 - Patch Kit 3 (BL17) is located at: T64V5117-C0046202-11060-Manual-ER-20010615.tar
 - Patch C462.02 is located at: <http://ftp1.support.compaq.com/public/unix/v5.1/>
 - DS-KZPCC-AC/CE RAID controllers support standalone and cluster configurations
 - No support as boot device in cluster configurations
 - TruCluster V5.1 (restricted to non-shared buses only)
- Only BA610-6D cages (with Nile Cards Rev -0B) shipped after 1 October 2001 support internal RAID. Contact Customer Services to replace Nile Cards shipped in BA610-6D disk card cages prior to 1 October 2001 where internal RAID is required.

		Maximum # Supported			
		Tru64 UNIX	Open VMS	Linux	
SCSI	PCI 2-port PCI to Ultra3, 64-bit LVD SCSI adapter, uses one PCI slot; includes internal 68-pin and external 68-pin VHDCI connectors; requires 3X-BC56J-xx cable to connect adapter to Universal shelf; supports internal SDLT tape drives and external SDLT tape libraries; supports dual-bus (Model 4354R) and single-bus (Model 4314R) shelves; support restricted to EV68 833-MHz systems only and Tru64 UNIX V5.1A as a minimum. See Step 12 for graphics restrictions. The 3X-KZPEA-DB adapter supports shared SCSI under Tru64 UNIX. NOTE: Two-node maximum per shared bus; each shared bus requires 3X-BN55A-01 Y-cable and 3X-H32CT-AA external LVD terminator; Tru64 UNIX supports single and dual-bus disk shelves. Requires Tru64 UNIX V5.1A as minimum revision with Patch Kit 4: - T64V51AB21AS0004-20030206.tar Requires Tru64 UNIX V5.1B and Patch Kit: - T64V51BB03AS0001-20021229. OpenVMS V7.2-2 requires Tima kit: - DEC-AXPVMS-V722_FIBRE_SCSI-V0100-4.PCSI OpenVMS V7.3 requires Tima kit: - DEC-AXPVMS-V73_FIBRE_SCSI-V0100-4.PCSI OpenVMS supports dual-bus disk shelves only.		4	-	3X-KZPEA-DB
	PCI 1-port Ultra2 (LVD) SCSI adapter, 32-bit, single-channel (uses one PCI slot); includes internal 68-pin and external 68-pin HD connectors; order BN38C-xx cable to connect adapter to Ultra3 shelf, or order VHDCI converter (BN38E-0B) for use with included cable; HSZxx RAID controllers not supported. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: http://ftp.support.compaq.com/patches/new/openvms.shtml Tru64 UNIX V4.0F requires Patch Kit2 BL13: - DUV40FAS0002-19991116.tar	6	6	6	3X-KZPCA-AA
	68-pin HD male-to-VHDCI male UltraSCSI cable; -xx = 02, 03, 05, 10, 20 meters				BN38C-xx
	PCI 1-port UltraSCSI differential adapter (uses one PCI slot); includes external 68-pin HD connector, requires BN38C-xx cable (2 to 220 meters) to connect adapter to differential UltraSCSI shelf or RAID controller	5	5	5	3X-KZPBA-CC
	68-pin HD male-to-VHDCI male UltraSCSI cable; -xx = 02, 03, 05, 10, 20 meters				BN38C-xx

Options

Fibre Channel	PCI-X to 2-Gb Fibre Channel adapter, 64-bit/66-MHz, single-channel (302784-B21) OpenVMS V7.3-1 requires TIMA Kit: VMS73_1_SCSI_FIBRE_V0300 OpenVMS V7.3-1 clusters require TIMA Kit: VMS73_1_CLUSTER_V0100 Tru64 UNIX V5.1A requires NHD 6 and T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1: T64V51BB03AS0001-20021229.tar DS-KGPSA-EA does not support MSA 1000	6 per system	6 per system	-	DS-KGPSA-EA
	PCI to 2-Gbit Fibre Channel adapter, 64-bit, single-channel (uses one PCI slot) (261329-B21) NOTE: When used in standalone or TruCluster environment (with Fibre Channel Switches, Step 11), a maximum of six adapters is supported. Arbitrated loop is not supported. Tru64 UNIX V5.1 requires Patch Kit: - T64V51B18AS0004-20011114.tar OpenVMS V7.2-2 requires Tima Kit: - DEC-AXPVMS-VMS722_FIBRE_SCSI-V0100 OpenVMS V7.3 requires Tima Kit: - DEC-AXPVMS-VMS73_FIBRE-SCSI-V0200	See Note	See Note	-	DS-KGPSA-DA
	PCI to 1-Gbit Fibre Channel adapter, 64-bit, single-channel (uses one PCI slot); direct attach supports a maximum of four adapters; TruCluster supports a maximum of two adapters	4	4	-	DS-KGPSA-CA
	See Fibre Channel cables – Step 11				
	PCI-to-Fibre Channel adapter, 64-bit single channel (uses one PCI slot); includes cable to HSG80 controller; requires Linux RedHat V6.2 and Linux SuSE V6.3; for details, refer to: http://www.compaq.com/products/storageworks/adapters/fchba-linux.html	-	-	3	DS-SWLA4-PD
Multi-function Module	PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter. See Step 8.	1	1	-	3X-DEPVZ-AA
	PCI 2-port UltraSCSI single-ended adapter and 10/100 Mb Ethernet combo adapter (uses one PCI slot); includes internal 68-pin and 50-pin HD connectors and two external 68-pin VHDCI SCSI connectors, requires BN37A-xx cable to connect to single-ended UltraSCSI shelf	4	4	-	KZPCM-DA

Options

RAID	PCI 3-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 64-MB cache (uses one PCI slot); requires connection to DS-SSL14-Rx (maximum seven disks supported per channel) or to DS-SL13R-xx (maximum 14 disks with single channel); requires graphics adapter to run console utilities (SMOR).	8	8	-	DS-KZPCC-CE
	PCI 1-port PCI to Ultra2, 64-bit, LVD backplane RAID controller with 16-MB cache (uses one PCI slot); requires connection to DS-SSL14-Rx (maximum seven disks supported per channel) or to DS-SL13R-xx (maximum 14 disks with single channel); requires graphics adapter to run console utilities (SMOR).	8	8	-	DS-KZPCC-AC
	PCI 2-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller with 128-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. NOTE: Tru64 UNIX requires V5.1B and TruCluster V5.1B (non-shared buses only) with Initial Patch Kit: T64V51BV1AS0001-20021229.tar Tru64 UNIX requires V5.1A with Initial Patch Kit: T64V51AV21AS0004-20030206.tar NOTE: Supports EV68 systems only; no host-based volume shadowing or shared bus support under OpenVMS	6 per system 3 - PCI bus 0 4 - PCI bus 1	6 per system 3 - PCI bus 0 4 - PCI bus 1	-	3X-KZPDC-BE
	PCI 4-port PCI to Ultra3, 64-bit, 66 MHz, LVD backplane RAID controller with 256-MB cache (uses one PCI slot); requires connection to DS-SL13R-xx shelves or BA610-6D card cage. NOTE: Tru64 UNIX requires V5.1B and TruCluster V5.1B (non-shared buses only) with Initial Patch Kit: T64V51BV1AS0001-20021229.tar Tru64 UNIX requires V5.1A with Initial Patch Kit: T64V51AV21AS0004-20030206.tar NOTE: Supports EV68 systems only; no host-based volume shadowing or shared bus support under OpenVMS	6 per system 3 - PCI bus 0 4 - PCI bus 1	6 per system 3 - PCI bus 0 4 - PCI bus 1	-	3X-KZPDC-DF
	PCI 1-port UltraSCSI RAID controller with 4-MB cache memory (uses one PCI slot), includes RAID Array 230/Plus Subsystem software and documentation kit; includes VHDCI female connector; tape drives not supported; only 9.1-GB disk drives supported, requires BN37A-xx cable (0.3 to 20 meters) to connect to single-ended UltraSCSI shelf	4	4	-	KZPAC-AA
	PCI 3-port UltraSCSI RAID controller with 4-MB cache memory (uses one PCI slot), includes RAID Array 230/Plus Subsystem Software and documentation kit; tape drives not supported; only 9.1-GB disk drives supported; SCSI cable required for each active port; requires BN37X-xx cable (0.3 to 20 meters) to connect to single-ended UltraSCSI shelf, and BN31K-0E for external third port connection	4	4	-	KZPAC-CA
	Same as KZPAC-CA with 8-MB cache memory	4	4	-	KZPAC-CB
	Cache battery backup for KZPAC controller				KZPSC-UB
	VHDCI male-to-VHDCI male UltraSCSI cable; -xx = 02, 2E [2.5], 03, 05, 10, 20, 25 meters NOTE: Manufacturing may substitute BN37A-02 cable for specific cabinet configurations.				BN37A-xx
	SCSI cable/bulkhead assembly kit, supports one third-port connection from KZPAC-CA/CB, allows external connection of one third port				BN31K-0E
	SCSI cable/bulkhead assembly kit, supports two third-port connections from KZPAC-CA/CB, allows external connection of two third ports				KZPAC-SB
RAID (Linux)	PCI 1-port Ultra SCSI RAID controller with 4-MB cache; supports disk drives only and external support only in BA356 StorageWorks shelves; requires RedHat V6.2, SuSE V6.3	-	-	4	SN-KZPBC-AA
	PCI 3-port Ultra SCSI RAID controller with 32-MB cache; supports disk drives only and external support only in BA356 StorageWorks shelves; requires RedHat V6.2, SuSE V6.3	-	-	4	FR-PCTAR-IB
	PCI 3-port Ultra SCSI RAID controller with 64-MB cache; supports disk drives only and external support only in BA356 StorageWorks shelves; requires RedHat V6.2, SuSE V6.3	-	-	4	FR-PCTAR-IC

Options

CI	PCI CI adapter for OpenVMS systems only; requires two PCI slots and CI cable for each adapter	-	2	-	CIPCA-BA
	CI cable				BNCIA-xx
DSSI	PCI DSSI controller for OpenVMS systems only; requires HSDxx controller to connect directly to StorageWorks shelf; requires BC29S-xx cable	-	4	-	KFPSA-AA
	6-foot DSSI cable for connection to HSD10 installed in BA36R pedestal shelf				BC29S-06
	9-foot DSSI cable for connection to HSD10 installed in BA36R cabinet shelf				BC29S-09
HVD to LVD Converters	<p>HVD (High Voltage Differential) adapters and LVD (Low Voltage Differential) devices are normally incompatible due to their different signaling voltage levels. This incompatibility does not allow direct communication between the different technologies. The HVD to LVD converter allows connectivity between legacy HVD Host Bus Adapters and today's LVD devices. The converter provides:</p> <ul style="list-style-type: none"> Connectivity in direct attach or shared configurations of all currently available LVD devices, including disks, tapes, libraries, and shelves (4314 or 4354) when used with the KZPBA-CB and 3X-KZPBA-CC HVD adapters. With the retirement of StorageWorks 1 disks and HVD shelves (BA36R), converters are desirable where upgrades to LVD HBAs, or upgrades to current operating system versions are not possible. Shared and direct attach configurations are interconnected much the same as those previously configured with homogeneous HVD solutions, except that the HVD output is now passed through the converter before proceeding to the LVD device. Where required, Y cables (BN21W-0B), terminators (H879-AA), cables (BN38C-10, BN37A-20), one or two HVD/LVD converters (one-port, two-port), Memory Channel adapters (CCMAB), one Memory Channel cable (BN39B-10), are used in conjunction with the LVD device of choice. 				
	HVD to LVD one-port converter				3X-DWZCV-BA
	HVD to LVD two-port converter				3X-DWZCV-CA

Step 11 - Storage Devices - Optional

Step 11a - Tape Devices

Tape Drives

- System includes embedded 1.44-MB diskette drive
 - System includes embedded 5.25-inch half-height 600-MB 16X IDE CD-ROM drive
 - Removable media slots provide support for up to two 5.25-inch half-height devices, or one 5.25-inch full-height (remove slot separator) removable media device; select up to two AIT or DAT devices or one DLT/SDLT tape device
 - For maximum performance, tape libraries must be configured with Fast Wide Differential (FWD) controllers for tape backup
 - For more information on tape drives, see <http://www.compaq.com/products/StorageWorks/sitemap.html#tapedrives>
- NOTE:** This Web site is available in English only.

Options

AIT Tape Drives (Internal)		<ul style="list-style-type: none"> The following AIT tape drives are supported with 3X-KZPCA-AA adapter. 	
	AIT 5.25-inch half-height 35/70-GB 8-mm Wide UltraSCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01)		3X-SZ35X-LB
	AIT 5.25-inch half-height 35/70-GB 8-mm LVD UltraSCSI tape drive, carbon black; requires SCSI cable (3X-BN46M-01)		3R-A2392-AA
	AIT 5.25-inch half-height 50/100-GB 8-mm Ultra2 (LVD) SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01)		3X-SZ50X-LB
	AIT 5.25-inch half-height 50/100-GB 8-mm Ultra2 (LVD) SCSI tape drive; carbon black; requires SCSI cable (3X-BN46M-01) (157766-B22)		3R-A3753-AA
	AIT 5.25-inch half-height 100/200-GB 8-mm Ultra3 SCSI tape drive; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters, carbon black, requires SCSI cable (3X-BN46M-01)		3R-A3623-AA
	1-meter Ultra2 68-pin LVD cable with two connectors, multimode terminator and two wide-to-narrow adapters		3X-BN46M-01
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AIT Tabletop Tape Drives			
	AIT 35/70-GB 8-mm LVD tabletop tape drive, carbon black, North America		216885-001
	Same as above, International		216885-B31
	Same as above, Japan		216885-291
	AIT 50/100-GB 8-mm SCSI tabletop tape drive with 120V North American power cord		157767-002
	Same as above, International		157767-B32
	Same as above, Japan		157767-292
	AIT 100/200-GB 8-mm Ultra3 SCSI tabletop tape drive; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters, North America, carbon black		249160-001
	Same as above, International		249160-B31
<hr/>			
AIT Hot-plug Tape Drives		The following AIT hot-plug tape drives use two Universal (BA610) slots:	
	AIT 35/70-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves		3R-A2396-AA
	AIT 50/100-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves		3R-A2779-AA
	AIT 100/200-GB hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves; supported with 3X-KZPEA-DB, 3X-KZPCA-AA, or 3X-DEPVZ-AA LVD adapters		3R-A3621-AA
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AIT Autoloaders			
	AIT 35-GB tabletop autoloader, 8 cartridge, U.S.		292355-001
	Same as above, International		292355-B31
	AIT 35-GB rackmount autoloader, 8 cartridge, U.S.		280349-001
	Same as above, International		280349-B31
	AIT Rail kit for autoloader		284930-001
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AIT Tape Libraries			
	SSL2020 AIT tabletop library with one AIT 50-GB drive and 20 slots, LVD		175195-B21
	SSL2020 AIT tabletop library with two AIT 50-GB drive and 20 slots, LVD		175195-B22
	SSL2020 AIT rackmount library with one AIT 50-GB drive and 20 slots, LVD (Universal shelves)		175196-B21
	SSL2020 AIT rackmount library with two AIT 50-GB drives and 20 slots, LVD (Universal shelves)		175196-B22
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Options

DAT Tape Drives (Internal)	<ul style="list-style-type: none"> Select up to two DAT devices The following DAT tape drives are supported with 3X-KZPCA-AA, and 3X-DEPVZ-AA adapters. TLZ10 tape drives support 3X-KZPEA-DB adapters on Tru64 UNIX and OpenVMS (4 per bus). 	
	DAT 12/24-GB 4-mm 5.25-inch half-height SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01) (Linux-supported option)	TLZ10-LB
	DAT 20/40-GB 4-mm 5.25-inch half-height Ultra2 (LVD) SCSI tape drive, top gun blue; requires SCSI cable (3X-BN46M-01)	3X-SD20X-LB
	DAT 20/40-GB 4-mm 5.25-inch half-height Ultra2 (LVD) SCSI tape drive, carbon black; requires SCSI cable (3X-BN46M-01) (157769-B22)	3R-A3752-AA
	DAT 40-GB LVD internal tape drive (Q1553A)	3R-A4752-AA
	DAT 72-GB LVD internal tape drive (Q1525A)	3R-A4544-AA
	1-meter Ultra2 68-pin LVD cable with two connectors, multimode terminator and two wide-to-narrow adapters	3X-BN46M-01
	DAT 12/24-GB 4-mm narrow SCSI tape drive in StorageWorks carrier	DS-TLZ10-VA
DAT Tabletop Tape Drives	DAT 20/40-GB 4-mm Wide Ultra2 (LVD) tabletop SCSI tape drive with 120V North American power cord, carbon black	157770-002
	Same as above, International	157770-B32
	Same as above, Japan	157770-292
	DAT 40-GB LVD tabletop tape drive with North America power cord (Q1554A)	3R-A4753-AA
	Same as above, International (Q1555A)	3R-A4754-AA
	DAT 36/72-GB LVD tabletop SCSI tape drive with 120V North America power cord, carbon black (Q1527A)	3R-A4545-AA
	DAT 72-GB LVD tabletop tape drive with North America power cord (Q1525A)	3R-A4545-AA
	Same as above, International	3R-A4546-AA
DAT Hot-plug Tape Drive	DAT 20/40-GB DDS4 hot-plug LVD Universal tape drive, uses two slots in BA610-6D or 43xxx shelves (Linux-supported option)	3R-A2780-AA
	DAT 40-GB hot-plug LVD tape drive (Q1546A)	3R-A4745-AA
	DAT 36/72-GB hot-plug LVD tape drive, carbon black; uses two slots in BA610-6D or 43xxx shelves (Q1529A)	3R-A4547-AA
	DAT 72-GB hot-plug LVD tape drive (Q1529A)	3R-A4547-AA
DAT Autoloaders	DAT 20/40-GB auto loader external; requires VHDCI BN38A-0B adapter and BN23G-xx SCSI cable, North America	166505-001
	Same as above, International	166505-B31
	Same as above, Japan	166505-291
SDLT Tape Drives (Internal)	<ul style="list-style-type: none"> Select one SDLT tape device The following SDLT tape drives are supported with 3X-KZPCA-AA and 3X-KZPEA-DB adapters. 	
	SDLT 110/220-GB 3U/5U tape drive (Linux-supported option)	192106-B25
	SDLT 160/320-GB 3U/5U tape drive, carbon black	257319-B21

Options

SDLT Tabletop Tape Drives	SDLT tabletop 110/220-GB external tape drive, carbon black - TruCluster support restricted to non-shared buses only - U.S.	192103-002
	Same as above – International	192103-B32
	Same as above – Japan	192103-292
	SDLT tabletop 160/320-GB external tape drive, carbon black- U.S.	257319-001
	Same as above – International	257319-B31
	Same as above – Japan	257319-291

Options

DLT/SDLT Tape Libraries	
Rackmount kit for H9Axx M-Series cabinets – required for mounting MSL5000 series in M-Series cabinets	254795-001
MSL5026DLX, DLT tabletop library with one 40/80-GB DLT tape drive, LVD	231821-B21
MSL5026DLX, DLT tabletop library with two 40/80-GB DLT tape drives, LVD	231821-B22
MSL5026DLX or MSL5026SL, DLT/SDLT rackmount library, 0 drives – requires rackmount kit (254795-001)	231979-B21
MSL5026DLX, DLT rackmount library with one 40/80-GB DLT tape drive, LVD – requires rackmount kit (254795-001)	231891-B21
MSL5026DLX, DLT rackmount library with two 40/80-GB DLT tape drives, LVD – requires rackmount kit (254795-001)	231891-B22
MSL5026S2, SDLT2 tabletop library with one 160/320-GB SDLT tape drive, LVD	293473-B21
MSL5026S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD	293473-B22
MSL5026S2 SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001)	293472-B21
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive, LVD	293472-B22
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293472-B23
MSL5026S2, SDLT2 rackmount library with one 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B24
MSL5026S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293472-B25
MSL5052SL SDLT tabletop library with two 110/220-GB drives, LVD	249490-B21
MSL5052SL SDLT rackmount library, 0 drives, LVD – requires rackmount kit (254795-001)	255102-B21
MSL5052SL SDLT rackmount library with two 110/220-GB drives, LVD – requires rackmount kit (254795-001)	249491-B21
MSL5052SL SDLT 110/220-GB drive field upgrade, LVD	231823-B22
MSL5052S2, SDLT2 tabletop library with two 160/320-GB SDLT tape drives, LVD, graphite	293476-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive, LVD	293474-B21
MSL5052S2, SDLT2 rackmount library with two 160/320-GB SDLT tape drive with Fibre Channel, LVD	293474-B24
MSL6000 with LTO Gen2 Tape Libraries	
MSL6000 LTO Gen2 add-on drive	330729-B21
MSL6030 with 0 drives, LTO, LVDS, rackmount	330731-B21
MSL6030 with one drive, LTO2, LVDS, rackmount	330731-B22
MSL6030 with two drives, LTO2, LVDS, rackmount	330731-B23
MSL6030 with one drive, LTO2, Fibre, rackmount	330731-B24
MSL6030 with two drives, LTO2, Fibre, rackmount	330731-B25
MSL6030 with one drive, LTO2, LVDS, tabletop	330788-B21
MSL6030 with two drives, LTO2, LVDS, tabletop	330788-B22
MSL6060 with 0 drives, LTO, LVDS, rackmount	331196-B23
MSL6060 with two drives, LTO2, LVDS, rackmount	331196-B21
MSL6060 with two drives, LTO2, Fibre, rackmount	331196-B22
MSL6060 with two drives, LTO2, LVDS, tabletop	331195-B21
ESL9198SL SDLT tape library with four 110/220-GB SDLT tape drives, 198 slots	234618-B21
ESL9198SL SDLT tape library with eight 110/220-GB SDLT tape drives, 198 slots	234618-B22
ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 222 slots	293409-B22
ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 222 slots	293409-B28
ESL9322S2 SDLT2 tape library, two 160/320GB SDLT tape drives, 322 slots	293410-B22
ESL9322S2 SDLT2 tape library, eight 160/320GB SDLT tape drives, 322 slots	293410-B28
ESL9326SL SDLT tape library with six 110/220-GB SDLT tape drives, LVD	234615-B21
ESL9326SL SDLT tape library with eight 110/220-GB SDLT tape drives, LVD	234615-B22
ESL9326SL SDLT tape library with 16 110/220-GB SDLT tape drives, LVD	234615-B26
ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 400 slots	293411-B22
ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 400 slots	293411-B28
ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 500 slots	293412-B22

Options

ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 500 slots	293412-B28
ESL9595S2 SDLT2 tape library, two 160/320-GB SDLT tape drives, 595 slots	293413-B22
ESL9595S2 SDLT2 tape library, 16 160/320-GB SDLT tape drives, 595 slots	293413-B28

ESL9595SL SDLT tape library, 0 drives, 400 slots	274672-B21
ESL9595SL SDLT tape library, 2 drives, 400 slots	274672-B22
ESL9595SL SDLT tape library, 16 drives, 400 slots	274672-B28
ESL9595SL SDLT tape library, 0 drives, 500 slots	281627-B21
ESL9595SL SDLT tape library, 2 drives, 500 slots	281627-B22
ESL9595SL SDLT tape library, 16 drives, 500 slots	281627-B28
ESL9595SL SDLT tape library, 0 drives, 595 slots	281628-B21
ESL9595SL SDLT tape library, 2 drives, 595 slots	281628-B22
ESL9595SL SDLT tape library, 16 drives, 595 slots	281628-B28

ESL9000 with LTO Gen2 Tape Libraries

ESL9322 library with 0 drives	330832-B21
ESL9595 library with 0 drives	330833-B21
ESL9000 Ultrium 460 drive upgrade kit	330834-B21
ESL9000 SDLT 110 drive upgrade kit	330837-B21
ESL9322 222 to 322 slot upgrade kit	330840-B21
ESL9000 5-MB memory module	330841-B21
ESL9595 400 to 500 slot upgrade kit	330842-B21
ESL9595 500 to 595 slot upgrade kit	330842-B22
ESL9595 400 to 595 slot upgrade kit	330842-B23

3U Rackmount Tape Drive Enclosure **NOTE:** The following options are supported with 3X-KZPCA-AA or 3X-KZPEA-DB LVD adapters.

3U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, carbon black, 0 drives	274338-B21
Rackmount Kit for H9Axx M-Series Cabinets, carbon black – required for mounting 3U Rackmount Tape Drive Enclosure in M-Series cabinet	3R-A3804-AA

NOTE: The 3U Rackmount Tape Enclosure supports up to four internal half-height removable devices, or up to two full-height devices; select up to four AIT or DAT devices or two DLT/SDLT devices with 3U Rackmount Tape Enclosure (274338-B21) or choose one of the preconfigured configurations listed below.

AIT 35/70-GB 3U tape drive, carbon black	216884-B21
AIT 50/100-GB 3U tape drive, carbon black (157766-B22)	3R-A3753-AA
DAT 20/40-GB 3U tape drive, carbon black (157769-B22)	3R-A3752-AA
DLT8000 40/80-GB tape drive	146196-B22
SDLT 110/220-GB tape drive	192106-B25
SDLT 160/320-GB tape drive, carbon black	257319-B21

Preconfigured Configurations

AIT 50-GB 3U rackmount kit, carbon black	274333-B21
DLT 40/80-GB, 3U rackmount kit, carbon black	274332-B21
DLT 40/80-GB, dual-drive, 3U rackmount kit, carbon black	274335-B21
SDLT 110/220-GB, 3U rackmount kit, carbon black	274331-B21
SDLT 110/220-GB, dual-drive, 3U rackmount kit, carbon black	274334-B21

Options

5U Rackmount Tape Drive Enclosure	5U LVD Rackmount Tape Drive Enclosure for use in H9Axx M-Series Cabinets, 0 drives, carbon black	274339-B21
	Rackmount Kit for H9Axx M-Series Cabinets, carbon black - required for mounting 5U Rackmount Tape Drive Enclosure in M-Series Cabinet	254795-001
	NOTE: The 5U Rackmount Tape Enclosure supports four full-height removable devices; select up to four DLT or SDLT devices with 5U Rackmount Tape Enclosure (274339-B21) or choose one of the preconfigured configurations listed below.	
	DLT8000 40/80-GB tape drive	146196-B22
	SDLT 110/220-GB tape drive	192106-B25
	SDLT 160/320-GB tape drive, carbon black	257319-B21
	Preconfigured configurations	
	SDLT 110/220-GB Tape Array III, 5U rackmount kit, carbon black	274336-B21
	DLT 40/80-GB Tape Array III, 5U rackmount kit, carbon black	274337-B21
	DLT Tape Array III Model 0 enclosure, U.S.	168047-001
	Same as above, International	168047-B31
	Same as above, Japan	168047-291

Step 11b – Network Storage Routers

Network Storage Routers	NOTE:	
	<ul style="list-style-type: none"> • e2400 and e1200 support LVD tape drives and tape libraries • e2400 supports ESL family tape drives and tape libraries • e1200 supports MSL family tape drives and tape libraries 	
	NSR M2402 Two Fibre Channel x 4 HVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS (262654-B21)	3R-A3741-AA
	NSR M2402 Two Fibre Channel x 4 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS (262653-B21)	3R-A3740-AA
	NSR e1200-160 One Fibre Channel x 2 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS, graphite	330728-B21
	NSR e2400 Two Fibre Channel x 4 LVD FC to SCSI Data Router with card cage, Tru64 UNIX and OpenVMS, carbon black (262665-B21)	3R-A3935-AA
	NSR e2400 Two Fibre Channel x 4 LVD FC to SCSI Data Router without card cage, Tru64 UNIX and OpenVMS, carbon black (262664-B21)	3R-A3745-AA
	NSR N1200 One Fibre Channel x 2 LVD FC to SCSI Data Router, Tru64 UNIX and OpenVMS supports tape drives and tape libraries (280823-B21)	3R-A3747-AA

Step 11c – External Storage Solutions/Controllers

Enterprise Virtual Array 5000	<p>ES40 servers support HP Enterprise Virtual Array 5000 (EVA5000) StorageWorks products running Tru64 UNIX and OpenVMS.</p> <p>The EVA5000 is available in pre-defined configurations with controllers and/or expansion configurations without controllers. The EVA5000 also offers a pre-defined configuration that is optimized for High Performance Technical Computing (HPTC) environments. For ordering information and configuration rules, refer to the EVA5000 QuickSpecs at:</p> <p>http://h18000.www1.hp.com/products/quickspecs/11006_div/11006_div.html</p>
Enterprise Virtual Array 3000	<p>ES40 servers support HP Enterprise Virtual Array 3000 (EVA3000) StorageWorks products running Tru64 UNIX and OpenVMS. Available in one of four integrated "independent bundle" configurations, the EVA3000 includes one pair of HSV100 controllers, two Fibre Channel drive enclosures and 8 to 16 Fibre Channel disk drives (bundle dependent). The EVA3000 is a full 2-Gb end-to-end Fibre Channel Array solution, which operates in 1-Gb, 2-Gb, or mixed 1-Gb/2-Gb SAN fabrics. For ordering information and configuration rules, refer to the EVA3000 QuickSpecs at:</p> <p>http://h18000.www1.hp.com/products/quickspecs/11619_div/11619_div.html</p>

Options

Modular SAN Array (msa1000)	StorageWorks Modular SAN Array is supported on Tru64 UNIX and two-node clusters (maximum); it is supported with DS-KGPSA-CA, DS-KGPSA-DA, and DS-KGPSA-EA adapters; requires connection via a switch - no direct connect; no support for FC arbitrated loop Tru64 UNIX V5.1A requires Patch Kit 4:T64V51AB21AS0004-20030206.tar Tru64 UNIX V5.1B requires Patch Kit 1:T64V51BB03AS0001-20021229.tar OpenVMS V7.3-1 requires TIMA Kit: VMS731_MSA1000-V0100 OpenVMS V7.3 requires TIMA Kit: VMS73_FIBRE_SCSI-V0500 OpenVMS V7.2-2 requires TIMA Kit: VMS722_FIBRE_SCSI-V0400 HP recommends OpenVMS customers run the default msa1000 cache settings at 50% read cache and 50% write cache; if a change to the default cache is required, msa1000 cache must be set to 50% write cache or higher (lower than 50% write cache is not supported) NOTE: DS-KGPSA-EA is not supported with OpenVMS	3R-A4328-AA
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StorageWorks Disk Array Family	NOTE: The StorageWorks Disk Array Family, specifically the XP128 and XP1024, are supported on AlphaServer ES40 systems. For product and ordering information, refer to the following Web pages: http://www.hp.com/products1/storage/products/disk_arrays/highend/xp1024/index.html http://www.hp.com/products1/storage/products/disk_arrays/highend/xp128/index.html The following part numbers have been assigned for reference purposes only:	
	3R-A4417-AA	A7876A
	3R-A4418-AA	A7906A
		XP128 Disk Array Control Frame
		XP1024 Disk Array Control Frame

Step 11d – Fibre Channel Options

The following hubs, data routers, switches, and cables are used in Fibre Channel configurations using the DS-KGPSA-xx adapter.

Fibre Channel Disk Drives	36-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (238590-B21) 72-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (238921-B21) 146-GB 10K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (293556-B21) 36-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (236205-B21) 72-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (2.54 cm) drive (293568-B21) 72-GB 15K rpm dual-port 2-Gb/sec FC-AL 1-inch (25.4 mm) drive (293568-B21)	3R-A3239-AA 3R-A3260-AA 3R-A3975-AA 3R-A3210-AA 3R-A3971-AA 3R-A3971-AA
Fibre Channel Hubs	Fibre Channel 7-port Storage Hub, International (Tru64 UNIX only) (234453-B31) Fibre Channel 7-port Storage Hub, Japan (Tru64 UNIX only) (234453-291)	DS-SWXHB-17 DS-SWXHB-J7
Fibre Channel Data Routers	1 Fibre Channel x 2 HVD data router (163082-B21) 1 Fibre Channel x 2 LVD data router (163083-B21) 2 x 4 LVD Fiber Channel to SCSI Network Storage Router (262653-B21) 2 x 4 HVD Fiber Channel to SCSI Network Storage Router (262654-B21)	3R-A2673-AA 3R-A2774-AA 3R-A3740-AA 3R-A3741-AA
Fibre Channel Switches	Fibre Channel 2-Gb 8-port SAN switch (Base) (322120-B21) Fibre Channel 2-Gb 8-port SAN switch (Power pack) (322121-B21) Fibre Channel 2-Gb 16-port SAN switch (Base); requires Tru64 UNIX V5.1A Patch Kit: T64V51AB01AS0001-20020116.tar (322118-B21) Fibre Channel 2-Gb 16-port SAN switch (Power pack) (322119-B21) Fibre Channel 2-Gb 32-port SAN switch (Base) (240603-B21) Fibre Channel 2-Gb 32-port SAN switch (Power pack) (333764-B21) Fibre Channel 2-Gb 64-port Core Switch (Base) (332177-B21) Fibre Channel 2-Gb 64-port Core Switch (Power pack) (332178-B21)	DS-DSGGD-BC DS-DSGGD-CC DS-DSGGD-CA DS-DSGGD-CB DS-DSGGD-AB DS-DSGGD-DB DS-DSGGE-BA DS-DSGGE-CA

Options

McData 64-port Fibre Channel SAN Director Class Switches

SAN Director 64 (1 Gb) 32 ports, base model	DS-DMGGD-AA
SAN Director (2 Gb) 64 ports (286809-B21)	DS-DMGGD-BA
SAN Director 64 (2 Gb) 140 ports	DS-DMGGD-CA
SAN Edge Switch 2 Gb, 32 ports (286810-B21)	DS-DMGGE-BC
SAN Edge Switch 2 Gb, 16 ports (286811-B21)	DS-DMGGE-BB
SAN Edge Switch 2 Gb, 24 ports	DS-DMGGE-BD

NOTE: Connection for, or between, 1-Gb and/or 2-Gb SAN switches requires different cables. Refer to the Switches, Hubs, and Interconnects QuickSpecs at:

http://www.compaq.com/products/quickspecs/North_America/10490.html

Fibre Channel Cables

NOTE: The following LC-SC connector cables support connectivity between 1-Gb and 2-Gb devices.

2-meter LC-SC multi-mode Fibre Channel cable (221691-B21)	3R-A2976-AA
5-meter LC-SC multi-mode Fibre Channel cable (221691-B22)	3R-A2977-AA
15-meter LC-SC multi-mode Fibre Channel cable (221691-B23)	3R-A2978-AA
30-meter LC-SC multi-mode Fibre Channel cable (221691-B26)	3R-A3458-AA
50-meter LC-SC multi-mode Fibre Channel cable (221691-B27)	3R-A3459-AA

NOTE: The following LC-LC connector cables support connectivity between 2-Gb and 2-Gb devices.

2-meter LC-LC multi-mode Fibre Channel cable (221692-B21)	3R-A2979-AA
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Options

Step 12 - Graphics Adapters - Optional

- RAID Configuration Utility is accessible via console port; optional graphics capability is available
- Select graphics adapter, monitor, and country-specific keyboard for Tru64 UNIX and OpenVMS systems if required

		Maximum # Supported			
		Tru64 UNIX	Open VMS	Linux	
2D Graphics	PCI (32-bit, 33-MHz) multi-function (single-port 10/100 Ethernet UTP/RJ45, Ultra2 LVD SCSI, and 2D graphics) adapter NOTE: No support for multi-head graphics. OpenVMS V7.2-2 requires OpenVMS Tima Kit located at: - http://ftp.support.compaq.com/patches/.new/openvms.shtml Tru64 UNIX V5.1 requires Patch Kit 3: - T64V51AS0003-20010413.tar Tru64 UNIX V4.0F with NHD2 - TruCluster V5.1 support restricted to non-shared buses Use BN25G, BN26M, BN24Q, or BN28Q twisted pair RJ45 cables.	1	1 Requires Slot 0	-	3X-DEPVZ-AA
2D/3D Graphics	RADEON 7500 PCI 2D/3D graphics accelerator Tru64 UNIX: Requires V5.1B with Patch Kit 1: T64V51BB03AS0001-20021229.TAR OpenVMS: Requires V7.3-1 with TIMA Kit: DEC-AXPVMS-VMS731_GRAPHICS-V0300-4.PCSI NOTE: For multi-head support, refer to Read Me First document/Release Notes. Do not mix with other graphics cards; 3D operation only functions with one card, restricted to non-shared SCSI buses.	1	4	-	3X-PBXGG-AA
	PowerStorm 300 3D multi-head graphics accelerator with 15-MB frame buffer memory and 16-MB texture memory NOTE: Graphics controllers must be the same type (PowerStorm); no mixing. NOTE: If using SN-PBXGD-AD graphics adapter on the same PCI bus with the 3X-KZPEA-DB adapter, the SN-PBXGD-AD must be at minimum revision C06.	8	4	-	SN-PBXGD-AD
	PowerStorm 350 3D multi-head graphics accelerator with 30-MB frame buffer memory and 32-MB texture memory NOTE: If using SN-PBXGD-AE graphics adapter on the same PCI bus with the 3X-KZPEA-DB adapter, the SN-PBXGD-AE must be at minimum revision B05 or A03.	8	4	-	SN-PBXGD-AE

NOTE: PowerStorm 300 and PowerStorm 350 adapters require the following:
OpenVMS V7.2-2 (minimum version required) requires OpenVMS Tima Kits located at:
<http://ftp.support.compaq.com/patches/.new/openvms.shtml>
Tru64 UNIX V4.0F (minimum version required) requires Patch Kit 1 with Environmental Patch
PowerStorm 300 and PowerStorm 350 adapters can be combined, provided the system maximum is not exceeded.

Options

Step 13 - Monitors - Optional

- Graphics monitors other than those listed can be used if compatible with SVGA graphics ordered with system
- A video cable, 6-foot/1.8-meter length, is included with all variants of monitors.
- Video extension cable required if monitor is located more than 1 meter from server
- Monitors will ship with, but not be integrated with systems.

Carbon/Silver Monitors	V7550 17-inch (16-inch viewable image size) flat-faced shadow mask color monitor, two-tone (carbon/silver), 0.25mm dot pitch, VGA to 1024 x 768 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable	3R-A4002-AA
	Same as above, with Euro power cord	3R-A4201-AA
	Same as above, APD, no power cord	3R-A4202-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4203-AA
	S7500 17-inch (16-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.24-mm dot pitch, VGA to 1024 x 768 @ 85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable	3R-A4800-AA
	P930 19-inch (18-inch viewable image size) auto-scanning color monitor, Diamondtron NF, 0.24-mm aperture grille pitch, VGA to 1600 x 1200 @85 Hz, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable,	3R-A4215-AA
	Same as above, with Euro power cord	3R-A4391-AA
	Same as above, Taiwan, with NA power cord	3R-A4392-AA
	Same as above, Southern Hemisphere, 0.25 to 0.27 mm aperture grille pitch, with Australia/New Zealand power cord	3R-A4393-AA
	S9500 19-inch (18-inch viewable image size) FST multi-frequency color monitor, 2-tone (carbon/silver), 0.22-mm dot pitch, VGA to 1280 x 1024 @85Hz, MPRII/TCO99/Energy Star Compliant, Northern Hemisphere with PRC power cord CCIB, VGA cable	3R-A4801-AA
Carbon/Silver Flat Panel Monitors	P1130 21-inch (19.8-inch viewable image size) FD Trinitron auto-scanning color monitor, Diamondtron NF, 0.24-mm aperture grille pitch, VGA to 1792 x 1344 @85Hz, dual video input, USB Hub, MPRII/TCO 99/Energy Star Compliant, Northern Hemisphere with North America power cord, VGA cable	3R-A4216-AA
	Same as above, with Euro power cord	3R-A4396-AA
	Same as above, Taiwan, no power cord	3R-A4397-AA
	Same as above, with PRC power cord, CCIB	3R-A4400-AA
	Same as above, Southern Hemisphere, with Australia/New Zealand power cord	3R-A4398-AA
	TFT1825, 18-inch (18-inch viewable image size) TFT flat panel monitor, 0.28mm pixel pitch, 1600 x 1200 @60Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, one VGA, one DVI-I input connector. North America power cord, VGA and DVI-I cables	3R-A4292-AA
	L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), North America power cord, VGA and DVI-I cables	3R-A4857-AA
	L1530, 15-inch (15-inch viewable image size) TFT flat panel monitor, 0.297 mm pixel pitch, 1024 x 768 @60 Hz, multi-mode support, MPRII/TCO99/Energy Star compliant, two video input connectors (one VGA and one DVI-I), Euro power cord, VGA and DVI-I cables	3R-A4858-AA
Video Extension Cable	6-foot/1.8-meter video extension cable - optional	BN39C-02

Options

Monitor Power Cords	North America, 120V, 75-inch	BN26J-1K
	Australia, New Zealand, 2.5-meter (103541-011)	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter (103541-481)	BN19K-2E
	Egypt, India, South Africa, 2.5-meter (103541-AR1)	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter (103541-461)	BN19M-2E
	Japan, 2.5-meter, Dentori approved	3X-BN46F-02
	Switzerland, 2.5-meter (103541-511)	BN19E-2E
	UK, Ireland, 2.5-meter	BN19A-2E

Step 14 - Keyboards, Mouse, Power Cords, Documentation

Step 14a - Keyboards - Optional

- Select country-specific keyboard and mouse only if required.
- All keyboards listed may not be available in all geographies.
- Select an opal OpenVMS keyboard for use with VT5xx text terminals.

Options

Keyboard/Language	Opal	Carbon	
	OpenVMS	Tru64 UNIX and Linux	OpenVMS
U.S. keyboard	LK461-A2	3R-A4362-AA	3X-LK463-A2
Arabic keyboard	-	3R-LKQ48-BR	-
Belgian keyboard	LK461-AB	3R-LKQ48-AB	3X-LK462-AB
BHCSY keyboard	-	3R-LKQ48-AX	-
Canadian/English keyboard	LK461-AQ	-	3X-LK462-AQ
Canadian/French keyboard	LK461-AC	3R-LKQ48-AC	3X-LK462-AC
Cyrillic keyboard (Russian)	LK461-BT	3R-LKQ48-BT	3X-LK462-BT
Czech keyboard	LK461-BV	3R-LKQ48-BV	3X-LK462-BV
Danish keyboard	LK461-AD	3R-LKQ48-AD	3X-LK462-AD
Dutch keyboard	LK461-AH	3R-LKQ48-AH	3X-LK462-AH
Finnish keyboard	LK461-AF	3R-LKQ48-AF	3X-LK462-AF
French keyboard	LK461-AP	3R-LKQ48-AP	3X-LK462-AP
German keyboard	LK461-AG	3R-A4358-AA	3X-LK462-AG
Greek keyboard	LK461-BH	3R-LKQ48-BH	3X-LK462-BH
Hebrew keyboard	LK461-AT	3R-LKQ48-AT	3X-LK462-AT
Hungarian keyboard	LK461-BQ	3R-LKQ48-BQ	3X-LK462-BQ
International keyboard	-	3R-A4362-AA	-
Italian keyboard	LK461-AI	3R-A4363-AA	3X-LK462-AI
Japanese keyboard	-	3R-LKQ48-AJ	-
Korean keyboard	-	3R-LKQ48-BK	-
Latin-American keyboard	-	3R-LKQ48-AR	-
Norwegian keyboard	LK461-AN	3R-LKQ48-AN	3X-LK462-AN
Polish keyboard	LK461-BP	3R-LKQ48-BP	3X-LK462-BP
Portuguese keyboard	LK461-AV	3R-LKQ48-AV	3X-LK462-AV
Romanian keyboard	LK461-BL	-	3X-LK462-BL
Simplified Chinese keyboard	-	3R-A4370-AA	-
Slovak keyboard	LK461-CZ	3R-LKQ48-CZ	3X-LK462-CZ
Spanish keyboard	LK461-AS	3R-A4372-AA	3X-LK462-AS
Swedish keyboard	LK461-AM	3R-LKQ48-AM	3X-LK462-AM
Swiss/French keyboard	LK461-AK	3R-A4374-AA	3X-LK462-AK
Swiss/German keyboard	LK461-AL	-	3X-LK462-AL
Traditional Chinese keyboard	-	3R-LKQ48-BI	-
Thai keyboard	-	3R-LKQ48-CB	-
Turkish Q keyboard	LK461-BU	3R-LKQ48-BU	3X-LK462-BU
Turkish/F keyboard	LK461-BW	-	3X-LK462-BW
UK keyboard	-	3R-A4378-AA	-
Yugoslavian keyboard	LK461-BY	-	3X-LK462-BY

Options

Step 14b - Mouse - Optional

Keyboard or Mouse Extension Cable	6-foot/1.8-meter keyboard or mouse extension cable; to extend both keyboard and mouse order two cables	3X-BC34A-06
Mouse	3-button mouse – carbon	3R-A3480-AA

Step 14c - Power Cords

Tower Power Cords	<ul style="list-style-type: none"> Tower enclosure ordered in North America includes 120V power cord; selection of country-specific power cord is mandatory for all non-North American systems. Each additional power supply ordered with a system installed in tower enclosure requires additional power cord 	
Tower Power Cords	<ul style="list-style-type: none"> Pedestal systems ordered in North America include two 120V power cords; selection of two country-specific power cords is mandatory for all non-North American systems. 	
	North America, 120V, 75-inch	BN26J-1K
	Australia, New Zealand, 2.5-meter (103541-011)	BN19H-2E
	Central Europe, 2.5-meter	BN19C-2E
	Denmark, 2.5-meter (103541-481)	BN19K-2E
	Egypt, India, South Africa, 2.5-meter (103541-AR1)	BN19S-2E
	Israel, 2.5-meter	BN18L-2E
	Italy, 2.5-meter (103541-461)	BN19M-2E
	Japan, 2.5-meter	3X-BN46F-02
	Switzerland, 2.5-meter (103541-511)	BN19E-2E
	UK, Ireland, 2.5-meter	BN19E-2E

Step 14d - Documentation

Additional AlphaServer ES40 System Information Kit (print and CD), Owners Guide, User Interface Guide, and Release Notes	QA-6E88A-G8
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Step 15 - Console Terminal - Optional

<ul style="list-style-type: none"> Any terminal can be used as a console device Third-party console devices require an EIA-232 25-pin DSUB connector 	
VT510 video terminal; requires keyboard, H8575-x adapter, and BC16E-x cable	VT510-xx
Console cable, female connector (25-pin passive adapter)	H8575-A
Console cable, male connector (adapter with EOS, ESD, 25 POS D-SUB)	H8575-D

Step 16 - Upgrade Kit - Optional

Upgrades ES40 Model 1 with six I/O slots and support for four memory options to ES40 Model 2 with 10 I/O slots and support for eight memory options	3X-KFPPA-AA
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Options

Step 17 - Software - Required selection of media and documentation for first system on site

- Software Processor Code = E

Tru64 UNIX

- AlphaServer ES40 Tru64 UNIX systems include Unlimited User license, Server Extension license, Internet Express, and Secure Web Server
- AlphaStation ES40 Tru64 UNIX systems include preinstalled software, 2-user Base license and Open3D traditional license

When using Tru64 UNIX V5.0A or later

Tru64 UNIX media and online documentation on CD-ROM	QA-6ADAA-H8
Tru64 UNIX full hard copy documentation	QA-6ADAA-GZ
StorageWorks Software Package, with licenses for Logical Storage Manager and AdvFS Utilities	QB-5RXAE-AA
TruCluster Server License	QL-6BRAE-AA
Advanced Server for Tru64 UNIX, 25 client concurrent use license	QL-5U29M-3D
Advanced Server for Tru64 UNIX, 50 client concurrent use license	QL-5U29M-3E
Advanced Server for Tru64 UNIX, 100 client concurrent use license	QL-5U29M-3F
Advanced Server for Tru64 UNIX, 250 client concurrent use license	QL-5U29M-3G
Advanced Server for Tru64 UNIX, 500 client concurrent use license	QL-5U29M-3H
Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8
DECnet/OSI extended function license for Tru64 UNIX	QL-MTKAE-AA
DECnet/OSI end-system license for Tru64 UNIX	QL-MTJAE-AA
Open3D for Tru64 UNIX on CD-ROM, includes graphics drivers	QA-OAFAA-H8

When using Tru64 UNIX V4.0F

Tru64 UNIX media and online documentation on CD-ROM	QA-MT4AA-H8
Tru64 UNIX full hard copy documentation	QA-MT4AA-GZ
StorageWorks Software Package, with licenses for Logical Storage Manager and AdvFS Utilities	QB-5RXAE-AA
TruCluster Available Server License	QL-05SAE-AA
TruCluster Production Server License	QB-3RLAE-AA
Tru64 UNIX Driver for MEMORY CHANNEL license	QB-4ZCAE-AA
Advanced Server for Tru64 UNIX, 25 client concurrent use license	QL-5U29M-3D
Advanced Server for Tru64 UNIX, 50 client concurrent use license	QL-5U29M-3E
Advanced Server for Tru64 UNIX, 100 client concurrent use license	QL-5U29M-3F
Advanced Server for Tru64 UNIX, 250 client concurrent use license	QL-5U29M-3G
Advanced Server for Tru64 UNIX, 500 client concurrent use license	QL-5U29M-3H
Layered products media and documentation for Tru64 UNIX on CD-ROM	QA-054AA-H8
DECnet/OSI end-system license for Tru64 UNIX	QL-MTJAE-AA
DECnet/OSI extended function license for Tru64 UNIX	QL-MTKAE-AA
Open3D for Tru64 UNIX on CD-ROM, includes graphics drivers	QA-OAFAA-H8

Options

OpenVMS

- AlphaServer ES40 OpenVMS systems include Base license with System Manager license and Enterprise Integration Server License Package for OpenVMS Revision V3.1
- AlphaStation ES40 OpenVMS systems include pre-installed software, Base license, Concurrent Use 1-user license, NAS 150 Client license, MMS RT license and Open3D traditional license
- Enterprise Integration Package includes licenses for TCP/IP Services for OpenVMS, DECwindows Motif for OpenVMS Alpha, DECprint Supervisor for OpenVMS Alpha Plus, DECprint Supervisor for OpenVMS Open, DECnet-Plus for OpenVMS Alpha End System, Archive/Backup System for OpenVMS Management Tools, Archive/Backup Agent for Windows NT, OpenVMS Disk Services for Windows NT, Office Server for OpenVMS, PATHWORKS 32, PATHWORKS V6 for OpenVMS – Advanced Server, and DIGITAL Office Server Client Access License
- OpenVMS Concurrent Use licenses provide the right to interactively use the operating system by the specified number of concurrent users on a designated OpenVMS system. OpenVMS Concurrent Use licenses can be moved from one system to another at user discretion and can be shared in a mixed OpenVMS VAX and OpenVMS Alpha cluster.
- OpenVMS Traditional Unlimited Use license is system specific and can only be used on one system at a time. It cannot be shared between systems or in an OpenVMS VAX or OpenVMS Alpha Cluster.

Concurrent Use 1-user license	QL-MT3AA-3B
Concurrent Use 2-user license	QL-MT3AA-3C
Concurrent Use 4-user license	QL-MT3AA-3D
Concurrent Use 8-user license	QL-MT3AA-3E
Concurrent Use 16-user license	QL-MT3AA-3F
Concurrent Use 32-user license	QL-MT3AA-3G
Concurrent Use 64-user license	QL-MT3AA-3H
Concurrent Use 128-user license	QL-MT3AA-3J
Concurrent Use 256-user license	QL-MT3AA-3K
Traditional unlimited user license	QL-MT2AE-AA
OpenVMS V7.2-2 media and online documentation on CD-ROM	QA-MT1AR-H8
OpenVMS V7.3 media and online documentation on CD-ROM	QA-MT1AT-H8
OpenVMS media and documentation on CD-ROM	QA-MT1AA-H8
OpenVMS full hard copy documentation	QA-001AA-GZ
Layered products media and documentation for OpenVMS on CD-ROM, includes Enterprise Integration Server for OpenVMS media and documentation.	QA-03XAA-H8
DECnet extended function license for OpenVMS	QL-MTGAE-AA
DECnet end-system to extended function upgrade license for OpenVMS	QL-MTHAE-AA
OpenVMS Cluster license for Alpha systems	QL-MUZAE-AA
OpenVMS Volume Shadowing license	QL-2A1AE-AA

Step 18 - Hardware and Software Support Services for Tru64 UNIX and OpenVMS

- Select one of the optional HP Care Pack Service Packages described below that best support the customer's operational requirements for system availability.

HP Care Pack Services

- HP Care Pack Services are available for AlphaServer systems running Tru64 UNIX or OpenVMS operating systems. HP Care Pack Services are designed for customers who require support beyond that provided by the hardware product warranty with coverage for both Principal server systems and SSPs (Subsequent System Packages) - that meet a full range of customer support requirements.

Options

Program Features – Principal Server

- | | |
|------------------------|--|
| HP Support Plus | <ul style="list-style-type: none">● 13 x 5 HW/SW support● 4-hour response on-site hardware support● 2-hour response for software support● License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users, and server extensions for Tru64 UNIX)● Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Some Layered products are not included on Consolidated Software Media Update Distribution and can be ordered separately.) |
|------------------------|--|
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- | | |
|---------------------------|---|
| HP Support Plus 24 | <ul style="list-style-type: none">● 24 x 7 HW/SW support● Named HW engineer● 4-hour response on-site hardware support● 2-hour response for software support● License Subscription for HP O/S software and embedded L/P (i.e., EIS for OpenVMS, unlimited users and server extensions for Tru64 UNIX)● Consolidated Software Media Update Distribution for OpenVMS or Tru64 UNIX and their layered products. (Some Layered products are not included on Consolidated Software Media Update Distribution and can be ordered separately.) |
|---------------------------|---|
-

Program Features – Additional Services

- | | |
|--|---|
| SSPs (Subsequent System Packages) | <ul style="list-style-type: none">● For HP Care Pack Support Plus and Support Plus 24● HW Support at same level as corresponding package for Principal server● License Subscription: HP O/S (where applicable)● Telephone support through Principal server covered by full support package |
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- | | |
|---------------------|--|
| Installation | <ul style="list-style-type: none">● Pre-installation review● Unpacking of equipment● Assemble and test● Basic product usage info● No software installation added |
|---------------------|--|
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- | | |
|--|--|
| Installation & Startup HP O/S | <ul style="list-style-type: none">● Pre-installation review● Unpacking of equipment● Assemble and test● Basic product usage info● Install operating systems● Product configuration● Print & network access● Orientation |
|--|--|
-

Options

Model/HP Care Pack Services	Principal Server 1 year	Principal Server 3 years	Subsequent Systems 1 year	Subsequent Systems 3 years
AlphaServer ES40 Model 1 Pedestal				
HP Support Plus	FP-F01AA-12	FP-F01AA-36	FP-F21AA-12	FP-F21AA-36
HP Support Plus 24	FP-F02AA-12	FP-F02AA-36	FP-F22AA-12	FP-F22AA-36
Installation	FP-FINST-AA	FP-FINST-AA	FP-FINST-AA	FP-FINST-AA
Installation & Startup	FP-FSTAR-AA	FP-FSTAR-AA	FP-FSTAR-AA	FP-FSTAR-AA
AlphaServer ES40 Model 2 Pedestal				
HP Support Plus	FP-F01BA-12	FP-F01BA-36	FP-F21BA-12	FP-F21BA-36
HP Support Plus 24	FP-F02BA-12	FP-F02BA-36	FP-F22BA-12	FP-F22BA-36
Installation	FP-FINST-BA	FP-FINST-BA	FP-FINST-BA	FP-FINST-BA
Installation & Startup	FP-FSTAR-BA	FP-FSTAR-BA	FP-FSTAR-BA	FP-FSTAR-BA
AlphaServer ES40 Model 1 Tower/Drawer				
HP Support Plus	FP-F01CA-12	FP-F01CA-36	FP-F21CA-12	FP-F21CA-36
HP Support Plus 24	FP-F02CA-12	FP-F02CA-36	FP-F22CA-12	FP-F22CA-36
Installation	FP-FINST-CA	FP-FINST-CA	FP-FINST-CA	FP-FINST-CA
Installation & Startup	FP-FSTAR-CA	FP-FSTAR-CA	FP-FSTAR-CA	FP-FSTAR-CA
AlphaServer ES40 Model 2 Tower/Drawer				
HP Support Plus	FP-F01DA-12	FP-F01DA-36	FP-F21DA-12	FP-F21DA-36
HP Support Plus 24	FP-F02DA-12	FP-F02DA-36	FP-F22DA-12	FP-FINST-DA
Installation	FP-FINST-DA	FP-FINST-DA	FP-FINST-DA	FP-FINST-DA
Installation & Startup	FP-FSTAR-DA	FP-FSTAR-DA	FP-FSTAR-DA	FP-FSTAR-DA

NOTES:

- AlphaServer ES40 systems include three years hardware warranty with 5 x 9, on-site Next Business Day response.
- HP Care Pack Services include support for new HP branded hardware options internal to the AlphaServer enclosure plus a monitor (17-inch or less excluding flat panel models).
- External storage devices/cabinets carry their own level of warranty and should be quoted separately for uplifted warranty services.
- In addition to the HP Care Pack Services shown above, other service packages are available for separate hardware and software support. For more information on Hardware and Software Upfront Services and other HP service options available for AlphaServers, consult your Sales Account Manager, HP Services Principal, or visit <http://www.compaq.com/services/> **NOTE:** This website is available in English only.

TechSpecs

Tower Configuration	Dimensions (H x W x D)	20 x 15.25 x 31 in (50.8 x 38.7 x 78.7 cm)		
	Shipping Dimensions	32.2 x 24 x 40 in (82.48 x 60.2 x 101.6 cm)		
	Weight	Typical Configuration	144.3 lb (65.6 kg)	
		Maximum Configuration	212.8 lb (96.7 kg)	
	Shipping Weight	Typical Configuration	172 lb (78 kg)	
		Maximum Configuration	242 lb (110 kg)	
	Clearances	Operating		Service
		Front	29.5 in (75 cm)	29.5 in (75 cm)
		Rear	6 in (15 cm)	29.5 in (75 cm)
		Left Side	None	29.5 in (75 cm)
		Right Side	None	None

Pedestal Configuration	Dimensions (H x W x D)	30.8 x 20 x 31.75 in (78.2 x 50.8 x 80.6 cm)		
	Shipping Dimensions	42.4 x 39.5 x 23.9 in (107.7 x 100.3 x 60.7 cm)		
	Weight	Typical Configuration	280 lb (127 kg)	
		Maximum Configuration	350 lb (159 kg)	
	Shipping Weight	Typical Configuration	328 lb (149 kg)	
		Maximum Configuration	407 lb (185 kg)	
	Clearances	Operating		Service
		Front	29.5 in (75 cm)	29.5 in (75 cm)
		Rear	6 in (15 cm)	29.5 in (75 cm)
		Left Side	None	None
		Right Side	None	29.5 in (75 cm)

Rackmount System	Dimensions (H x W x D)	13.87 x 17.6 x 30.1 in (35.2 x 44.7 x 76.5 cm) (fits 14 in [8U] standard RETMA cabinet)		
	Shipping Dimensions	28.8 x 24 x 40 in (73.2 x 60.7 x 101.6 cm)		
	Weight	When lifting:		
		Nominal	110 lb (50 kg)	
		Maximum	167.2 lb (76 kg)	
	Shipping Weight	Total added to cabinet (brackets, slides, cables):		
		Nominal	130 lb (59 kg)	
		Maximum	202.4 lb (92 kg)	
		Nominal	158 lb (72 kg)	
		Maximum	233 lb (106 kg)	
	Clearances	Operating	Service	
		See specific cabinet requirements	Minimum 4 ft (121.9 cm), 30 in (76.3 cm) withdrawal on rails	

TechSpecs

Cabinet Configuration

	H9A10 M-Series	H9A15 M-Series
Dimensions (H x W x D)	67 x 23.6 x 41.5 in (170 x 60 x 105.4 cm)	79 x 23.6 x 41.5 in (200 x 60 x 105.4 cm)
Shipping Dimensions	73 x 36 x 48 in (185.5 x 91.5 x 122 cm)	85 x 36 x 48 in (216 x 91.5 x 122 cm)
Weight	Configuration dependent	Configuration dependent
Shipping Weight	Nominal: 946 lb (430 kg) Maximum: 1,375 lb (625 kg)	Nominal: 1,056 lb (550 kg) Maximum: 1,408 lb (640 kg)

System Unit

Environmental

Temperature

Operating (Tower, Pedestal, Rackmount)	50° to 95° F (10° to 35° C)
Non-operating	–40° to 151° F (–40° to 66° C)
Storage (60 days)	–40° to 151° F (–40° to 66° C)
Rate of change	20° F/hr (11° C/hr)

NOTE: Maximum operating temperature at sea level; reduce by 1.8° F (1° C) for each 2,000 ft (600 m) above sea level.

Humidity

Operating	20% to 80%
Non-operating	20% to 80%
Storage (60 days)	10% to 95%
Rate of change	20% hr

Maximum Wet Bulb Temperature

Operating	82° F (28° C)
Storage (60 days)	115° F (46° C)

Maximum Dew Point Temperature

Operating	36° F (2° C)
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Heat Dissipation

	Maximum
Tower and Rack	1300 W, 4,440 BTU/hr
Pedestal	2400 W, 8,196 BTU/hr
H9A10/H9A15 Cabinets	4800 W, 16,392 BTU/hr

Air Flow and Quality

Intake location	
Exhaust location	Rear Tower, Pedestal, Rack; Rear/top H9A10/H9A15

Particle size	
Concentration	

Altitude (unpressurized)

Operating	10,000 ft (3,048 m)
Non-operating	40,000 ft (12,192 m)

NOTE: Higher altitudes are possible if maximum operating temperature is reduced (see Temperature); other restrictions may apply such as maximum permissible altitude for hard drives.

Acoustics (Declared values per ISO 9296 and ISO 7779)

Acoustics

	LWAd3B	LnAm5dBA (bystander position)
Idle	6.6	48
Operating	6.6	48

NOTE: Current values for specific configurations are available, 1 B = 10 dBA.

Electrical (Power supplies are universal, PFC, auto ranging, 100/240 VAC)

Nominal Voltage (VAC)	100	120	200 to 240
Voltage Range (VAC) (temporary condition)	90 to 100	110 to 128	180 to 250
Power Source Phase	Single	Single	Single
Nominal Frequency (Hz)	50/60	50/60	50/60
Frequency Range (Hz)	49 to 51/59 to 61	49 to 51/59 to 61	49 to 51/59 to 61
Maximum Inrush Current	Tower and Rackmount	Single power cord	11.0 A 8.5 A 5.0 A
		Multiple power cords	6.5 A 5.3 A 3.0 A
		Maximum VA	1,300 1,270 1,250
	Pedestal	Each power cord	12.0 A 10.5 A 6.0 A
		Maximum VA	1,960 1,900 1,880
	M-Series Cabinet (configuration dependent)	Nominal voltage (VAC)	100 120 220 to 240
		Each power cord	24 A 24 A 16 A
		Up to 3 (75 in (190 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to country-specific
	Pedestal	2 (75 in (190 cm))	120V non-removable NEMA 5-15 (N. America) or 200-240V IEC 320 C13 to country-specific
	Rackmount	3 (14 ft 10 in (52 cm))	IEC 320 C13 to NEMA 5-15 (North America) or IEC 320 C13 to IEC 320 C14 (other countries)
Power Cords	Cabinet	2 (10 ft 10 in (30 cm))	120V non-removable NEMA L5-30P or 200-240V non-removable IEC 309
Regulatory	Agency Approvals	UL: Listed to UL1950 (3rd edition)	
		CSA: Certified to CAN/CSA-C22.2 No. 950-M95	
	Reviewed to	TUV: EN 60950/A4: 1997 VDE 0805 GS marked FCC: Part 15.B Class A CE: EN55022, EN50082 VCCI Class II ITE BCIQ: CISPR22, CNS13438 C-Tick: CISPR22, AS/NZS 3548 AS/NZ 3260: 1993 Australian/New Zealand Standard EN 60950/A4: 1997 European Norm IEC 950 (second edition, third amend)	

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